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# IMPLEMENT & TRACTOR

*The Farm and Industrial Equipment Specifications Encyclopedia*

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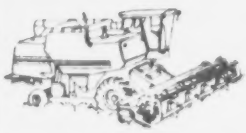

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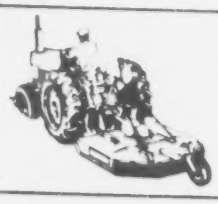

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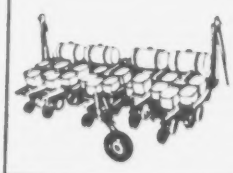

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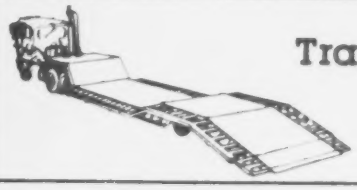

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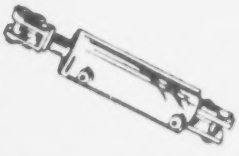

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*Abbreviations*
**DNA** – Does not apply.
**NA** – Not available.
**Std.** – Standard.
**Opt.** – Optional.
Linear measurements may be to nearest ¼-inch.

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***Farm Press Publications***

# Nebraska Test Procedures

**General**

Tractors are tested at the University of Nebraska according to the Agricultural Tractor Test Code approved by the American Society of Agricultural Engineers and the Society of Automotive Engineers or official Nebraska test procedure.

The manufacturer selects the tractor to be tested and certifies that it is a stock model. Each tractor is equipped with the common power consuming accessories such as power steering, power lift pump, generator, etc., if available. Power consuming accessories may be disconnected only when the means for disconnecting can be reached from the operating station. An official representative of the company is present during the test to see that the tractor gives its optimum performance. Additional weight may be added to the tractor as ballast if the manufacturer recommends use of such ballast. The static tire loads and the tire inflation pressures must conform to the specifications of Tire and Rim Association.

**Preparation for Test**

The engine crankcase is drained and refilled with new oil conforming to specifications in the operator's manual. The operator's manual is also used as the guide for selecting the proper fuel and for routine lubrication and maintenance operations.

The tractor is limbered up for a minimum of three hours on the drawbar. Preliminary adjustments of the tractor is permitted at this time. Any parts added or replaced during the limber-up run, or any subsequent runs, are mentioned in the individual test reports. The tractor is equipped with approximately the amount of added ballast that is to be used during the drawbar runs.

**PTO Performance**

Power take-off performance runs are made by connecting the power take-off to a dynamometer. During a preliminary power take-off the manufacturer's representative may make adjustment for the fuel, ignition or injection timing and governor control settings. The settings must be maintained for the remainder of the test. The manually operated governor control mechanism is set to provide the high-idle speed specified by the manufacturer. During the power take-off runs an ambient air temperature of approximately 75 degrees F. (24.0 degrees C) is maintained.

Maximum power is obtained at the rated engine speed specified by the manufacturer with the governor control set for maximum power. This same setting is used for all subsequent PTO runs. Time of the run is two hours. Whenever the power take-off speed during the maximum power run differs from the speeds set forth in the ASAE and SAE standards, an additional run is made at either 540 or 1000 rpm of the power take-off shaft. Time of this run is one hour.

**Drawbar Performance**

Maximum drawbar power is shown for the normal field speed selected by the manufacturer. All engine adjustments are the same as those used in the power take-off runs. If the manufacturer specifies a different rated engine speed for drawbar operations, then the position of the manually operated governor control is changed to provide the high-idle speed specified.

Maximum drawbar power is determined within the following limits: (1) slip of the drivers must not exceed 15 percent for pneumatic tires on the concrete test course or 7 percent for steel cleats on the well packed earthen course; (2) ground speeds must not exceed 10 miles per hour; (3) safe stability limits of the tractor must not be exceeded; (4) no other operating limit of the tractor must be exceeded. Drawbar load is applied until the manufacturer's rated engine speed is obtained with maximum governor control lever setting. Travel speed, drawbar pull and other data are recorded over two 500-foot straight level areas.

Fuel consumption is determined at the manufacturer's selected travel speed with the drawbar pull set: (1) to give rated engine rpm; (2) 75 percent of the pull at rated engine rpm; (3) 50 percent of the pull at rated engine rpm; and (4) maintaining the same load and travel speed as in (3) by shifting to a higher gear and reducing the engine rpm.

This summary shows the drawbar horsepower, corresponding travel speed and duel consumption at 100 percent, 75 percent, or 50 percent loads, and 50 percent of pull at reduced engine speed.

Also shown is the maximum drawbar horsepower produced for two 500-foot travel sections and corresponding travel speed, the maximum drawbar pull and the corresponding drive-wheel slippage.

In addition, the "lugging ability" obtained by increasing the load so that the full throttle engine speed drops to 80 percent of rated is given as a percent increase with respect to the pull at rated engine rpm.

The maximum drawbar horsepower and the corresponding speed and drawbar pull for other selected gears or travel speeds are shown in the individual test reports.

**Sound Measurement**

Sound is recorded during each of the Drawbar Performance runs as the tractor travels on a straight section of the test course. The dB(A) sound level is obtained with the microphone located near the right ear of the operator. Bystander sound readings are taken with the microphone placed 25 feet (7.5 meters) from the line of travel of the tractor.

An increase of 10 dB(A) will approximately double the loudness to the human ear.

# SUMMARY OF OECD TEST 1218—NEBRASKA SUMMARY 074
# CASE INTERNATIONAL 1896 DIESEL
# 12 SPEED
# (CHASSIS S/N *178955122* and Higher)

## POWER TAKE-OFF PERFORMANCE

| Power Hp kW | Crank shaft speed rpm | Fuel Consumption: Gal/hr lit/h | lb/hp hr g/kW h | Hp hr gal kW h/l | Mean Atmospheric Conditions |
|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | |
| **Rated Engine Speed—(PTO speed—1000 rpm):** | | | | | |
| 101.6 | 2105 | 5.75 | 0.396 | 17.96 | |
| 75.8 | | 21.78 | 0.241 | 7.48 | |
| **Maximum Power (2 Hours):** | | | | | |
| 104.5 | 1879 | 5.69 | 0.384 | 18.32 | |
| 77.8 | | 21.55 | 0.232 | 7.62 | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | |
| 101.6 | 2105 | 5.75 | 0.396 | 17.96 | Air temperature |
| 75.8 | — | 21.78 | 0.241 | 7.48 | 80°F (27°C) |
| 88.1 | 2145 | 5.19 | 0.411 | 17.00 | |
| 65.7 | | 19.63 | 0.250 | 7.35 | |
| 66.9 | 2165 | 4.57 | 0.457 | 15.55 | Relative humidity |
| 49.9 | | 16.55 | 0.278 | 7.02 | |
| 45.2 | 2194 | 3.54 | 0.347 | 12.74 | 17% |
| 33.7 | | 13.41 | 0.211 | 6.5 | |
| 22.5 | 2227 | 2.69 | 0.853 | 8.58 | Barometer |
| 16.8 | | 10.18 | 0.518 | 4.65 | |
| 0 | 2252 | 1.66 | — | — | 30.42" Hg (103 kPa) |
| (0) | | 7.34 | — | — | |

Maximum Torque 365.6 lb ft (495.0 Nm) @ 1202 RPM
Maximum Torque Rise 24.6%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp kW | Drawbar pull lbs | Speed mph /km/h | Crank shaft speed rpm | Slip % | Fuel Consumption: lb/hp hr g/kW h | Hp hr gal kW h/l | Temp °F °C: cool eng oil | Air dry bulb | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—6th (3-1) Gear** | | | | | | | | | |
| 77.9 | 5890 | 4.98 | 2100 | 2.5 | 0.554 | 15.10 | 185 | 54 | 30.21 |
| 58.1 | 26.2 | 7.99 | | | (0.337) | 2.58 | 85 | 12 | 102.3 |
| **75% of Pull at Maximum Power—6th (3-1) Gear** | | | | | | | | | |
| 57.9 | 4205 | 5.16 | 2175 | 1.9 | 0.580 | 12.05 | 185 | 54 | 30.21 |
| 43.2 | 18.7 | 8.31 | | | (0.353) | 2.15 | 85 | 12 | 102.3 |
| **50% of Pull at Maximum Power—6th (3-1) Gear** | | | | | | | | | |
| 41.0 | 2945 | 5.25 | 2190 | 1.5 | 0.706 | 10.00 | 185 | 54 | 30.21 |
| 30.6 | 13.1 | 8.42 | | | (0.429) | 1.97 | 85 | 12 | 102.3 |
| **75% of Pull at Reduced Engine Speed—7th (2.5) Gear** | | | | | | | | | |
| 57.9 | 4205 | 5.18 | 1956 | 1.9 | 0.549 | 12.84 | 180 | 52 | 30.21 |
| 43.2 | 18.7 | 8.33 | | | (0.332) | 2.29 | 82 | 11 | 102.3 |
| **50% of Pull at Reduced Engine Speed—7th (2.5) Gear** | | | | | | | | | |
| 40.9 | 2945 | 5.25 | 1906 | 1.5 | 0.639 | 10.91 | 180 | 54 | 30.21 |
| 30.5 | 13.1 | 8.42 | | | (0.389) | 2.15 | 82 | 12 | 102.3 |

**Location of Test:** AFRC Institute for Engineering Research, Wrest Park, Silsoe, Bedford, England MK45 4HS

**Dates of Test:** February-April, 1989

**Manufacturer:** J. I. CASE EUROPE Limited, Wheatley Hall Road, Doncaster, South Yorkshire, England DN2 4PG

**FUEL AND OIL: Fuel** No. 2 Diesel **Cetane No.** NA **Specific gravity corrected to 60°/60°F** (15.5°C) 0.8360 **Fuel weight** 6.977 lbs/gal (0.836 kg/l) **Oil SAE** 15W40 **Oil consumption for 10 hours** NA **Transmission and hydraulic lubricant** International Hytrans fluid **Front axle lubricant** SAE 90 EP

**ENGINE: Make** Consolidated Diesel Corporation (Case Diesel) **Type** six cylinder vertical with turbocharger **Serial No.** 2103533411 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.016" × 4.724" (102.0 mm × 120.0 mm) **Compression ratio** 17.5 to 1 **Displacement** 359 cu in (5883 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil; radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

**CHASSIS: Type** front wheel assist **Serial No.** *178955122* **Tread width** rear 62.0" (1574 mm to 82.7" (2100 mm) front 60.0" (1524 mm) to 89.0" (2261 mm) **Wheel base** 108.7" (2760 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial 3-range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.95 (3.14) second 2.60 (4.18) third 3.25 (5.23) fourth 3.52 (5.34) fifth 4.42 (7.12) sixth 4.98 (8.02) seventh 5.53 (8.90) eighth 6.64 (10.68) ninth 8.30 (13.35) tenth 10.15 (16.33) eleventh 13.51 (21.74) twelfth 16.89 (27.18) reverse 5.25 (5.23); 5.53 (8.90) 8.30 (13.35). **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2105 engine rpm and 540 rpm at 2125 engine rpm **Unladen tractor mass** 13105 lb (5944 kg)


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director


## DRAWBAR PERFORMANCE
### MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **2nd (1.2) Gear** | | | | | | | | |
| 75.5 | 12475 | 2.36 | 2101 | 15.0 | 0.736 | 13.05 | 183 | 30 | 30.21 |
| 56.4 | 55.5 | (3.79) | | | (0.526) | 2.57 | 84 | 11 | 102.3 |
| **3rd (1.5) Gear** | | | | | | | | | |
| 85.4 | 11441 | 2.90 | 1904 | 8.8 | 0.682 | 14.02 | 183 | 30 | 30.21 |
| 63.7 | 50.9 | (4.67) | | | (0.293) | 2.39 | 84 | 11 | 102.3 |
| **4th (2.1) Gear** | | | | | | | | | |
| 85.3 | 11280 | 2.85 | 1884 | 6.6 | 0.678 | 14.1 | 183 | 30 | 30.21 |
| 63.6 | 50.2 | (4.58) | | | (0.296) | 2.49 | 84 | 11 | 102.3 |
| **5th (2.8) Gear** | | | | | | | | | |
| 85.4 | 8205 | 3.90 | 1864 | 3.1 | 0.678 | 14.02 | 183 | 30 | 30.21 |
| 63.7 | 36.5 | (6.28) | | | (0.295) | 2.44 | 84 | 11 | 102.3 |
| **6th (3.1) Gear** | | | | | | | | | |
| 85.3 | 5420 | 4.83 | 1876 | 3.1 | 0.686 | 13.92 | 183 | 30 | 30.21 |
| 63.6 | 24.1 | (7.77) | | | (0.298) | 2.46 | 84 | 11 | 102.3 |
| **7th (2.5) Gear** | | | | | | | | | |
| 85.6 | 6610 | 4.92 | 1876 | 2.8 | 0.670 | 14.27 | 183 | 30 | 30.21 |
| 63.8 | 29.4 | (7.92) | | | (0.290) | 2.50 | 84 | 11 | 102.3 |
| **8th (3.2) Gear** | | | | | | | | | |
| 84.5 | 5371 | 5.42 | 1876 | 2.1 | 0.685 | 14.02 | 183 | 30 | 30.21 |
| 63.0 | 23.9 | (8.72) | | | (0.297) | 2.46 | 84 | 11 | 102.3 |
| **9th (3.3) Gear** | | | | | | | | | |
| 82.7 | 4190 | 7.46 | 1883 | 1.8 | 0.692 | 13.21 | 183 | 30 | 30.21 |
| 61.7 | 18.6 | (12.00) | | | (0.299) | 2.30 | 84 | 11 | 102.3 |

## TRACTOR SOUND LEVEL WITH CAB

| | dB(A) |
|---|---|
| Maximum sound level | 78.0 |
| Bystander | NA |

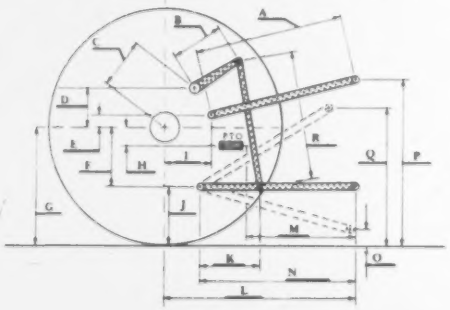
## TIRES AND WEIGHT

| | | Tested Without Ballast |
|---|---|---|
| Rear Tires | [illegible] | [illegible] |
| Front Tires | [illegible] | [illegible] |
| Height of Drawbar | | [illegible] mm |
| Static Weight: | Rear | [illegible] kg |
| | Front | [illegible] kg |
| | Total | [illegible] kg |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY II
Quick Attach: None
Maximum Force Exerted Through Whole Range: 5710 lbs (25.4 kN)
(1) Opening pressure of relief valve: NA
Sustained pressure at open relief valve: 2275 psi (157 Bar)
(2) Pump delivers rate at minimum pressure: 25.0 LPM (95.5 l/min)
(3) Pump delivers rate at maximum:
hydraulic power: 23.1 LPM (87.5 l/min)
Delivery pressure: 1770 psi (122 Bar)
Power: 23.7 Hp (17.7 kW)

## HITCH DIMENSIONS AS TESTED—NO LOAD




| | inch | mm |
|---|---|---|
| A | 22.9 | 581 |
| B | 12.0 | 305 |
| C | 14.6 | 372 |
| D | 13.1 | 333 |
| E | 9.2 | 80 |
| F | 12.4 | 315 |
| G | 32.3 | 820 |
| H | 4.4 | 112 |
| I | 20.2 | 514 |
| J | 19.9 | 505 |
| K | 17.1 | 434 |
| L | 42.7 | 1084 |
| *M | 20.5 | 521 |
| N | 30.1 | 765 |
| O | 7.9 | 200 |
| P | 40.0 | 1015 |
| Q | 32.5 | 825 |
| R | 34.4 | 875 |

*to 1000 rpm shaft

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD Test procedures. This tractor did not meet manufacturer's 5 point lift capacity claim of 6600 lbs (2994 kg). The performance figures on this summary apply to chassis S/N *178955122* and up. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1218**, Nebraska Summary 074, May 24, 1989.

LOUIS E. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

# NEBRASKA OECD TRACTOR TEST 1617—SUMMARY 055
# JOHN DEERE 4055 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp/hr kg/kW/h | Hp hr per gal kW h/l | Temp °F °C | Air °F °C | Baro in Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

## MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—PTO speed—1002 rpm

| | | | | | |
|---|---|---|---|---|---|
| 199.0 148.4 | 2224 9.9 | 5.4 8.7 | 2201 | 10.4 | |
| 84.0 62.6 | | 5.4 8.7 | 2201 | 0.0 | |

Maximum Power (2 Hours)

| | | | | | |
|---|---|---|---|---|---|
| 212.27 158.3 | 2400 10.7 | 6.43 10.35 | 2201 | 10.40 | |
| 89.25 66.6 | | 6.43 10.35 | 2201 | 0.0 | |

Air temperature

## VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|---|---|---|---|---|
| 199.18 148.5 | 2246 10.0 | 6.63 10.67 | 2421 | 10.13 | 76 24 |
| 84.00 62.6 | | 6.63 10.67 | 2421 | 0.0 | |
| 97.23 72.52 | 2303 10.2 | 6.58 10.59 | 2413 | 10.24 | Relative humidity |
| 41.00 30.6 | | 6.58 10.59 | 2413 | 0.0 | |
| 73.50 54.82 | 2525 11.2 | 5.83 9.38 | 2650 | 10.31 | 70 |
| 31.00 23.1 | | 5.83 9.38 | 2650 | 0.0 | |
| 49.31 36.77 | 2547 11.3 | 4.47 7.19 | 3027 | 11.01 | Barometer |
| 20.80 15.5 | | 4.47 7.19 | 3027 | 0.0 | |
| 24.86 18.54 | 2565 11.4 | 2.43 3.91 | 3455 | 9.23 | 29.02 Hg 98.26 kPa |
| 10.48 7.8 | | 2.43 3.91 | 3455 | 0.0 | |
| 0.58 0.43 | 2583 11.5 | 0.47 0.76 | 3855 | 0.11 | |
| 0.24 0.2 | | 0.47 0.76 | 3855 | 0.0 | |

Maximum Torque 547 lb ft (742 Nm) at 1200 rpm
Maximum Torque Rise 33.8 %
Torque Rise at 1000 engine rpm 31.0 %

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp/hr kg/kW/h | Hp hr per gal kW h/l | Temp °F °C coolant | Air °F °C built | Baro in Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—7th Gear** | | | | | | | | | |
| 92.79 69.14 | 7848 34.91 | 4.43 7.14 | 2201 | 5.32 | 0.495 0.300 | 14.02 2.96 | 185 85 | 70 21 | 28.95 98.02 |
| **75% of Pull at Maximum Power—7th Gear** | | | | | | | | | |
| 74.12 55.27 | 5889 26.19 | 4.72 7.60 | 2521 | 2.26 | 0.534 0.325 | 12.47 2.66 | 182 83 | 70 21 | 28.92 97.91 |
| **50% of Pull at Maximum Power—7th Gear** | | | | | | | | | |
| 50.14 37.38 | 3925 17.45 | 4.79 7.71 | 2539 | 1.60 | 0.566 0.345 | 10.57 2.24 | 180 82 | 70 21 | 28.92 97.91 |
| **75% of Pull at Reduced Engine Speed—9th Gear** | | | | | | | | | |
| 74.14 55.28 | 5886 26.18 | 4.72 7.60 | 1799 | 2.34 | 0.491 0.299 | 14.08 2.77 | 182 83 | 70 21 | 28.90 97.87 |
| **50% of Pull at Reduced Engine Speed—9th Gear** | | | | | | | | | |
| 50.20 37.43 | 3929 17.48 | 4.79 7.71 | 1811 | 1.60 | 0.560 0.341 | 12.55 2.47 | 179 82 | 70 21 | 28.90 97.87 |

**Location of Test**: Center for Agricultural Equipment, Lincoln, Nebraska 68583-0812, U.S.A.

**Dates of Test**: April-May 1989

**Manufacturer**: John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME**: **Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60/60 F (15/15 C)** 0.8501 **Fuel weight** 6.912 lbs/gal (0.828 kg/l) **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 3.555 gal (13.456 l) **Drained from motor** 3.478 gal (13.165 l) **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere G.L.5 Gear Lubricant 85W-140 **Total time engine was operated** 23.0 hours

**ENGINE**: **Make** John Deere Diesel **Type** six cyl. under vertical with turbocharger **Serial No.** *RG4076T102415* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 4.75" (115.8 mm × 120.7 mm) **Compression ratio** 16.0 to 1 **Displacement** 466 cu in (7634 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS**: **Fuel rate** 44.1-48.2 lb/hr (20.0-21.8 kg/hr) **High idle** 2350-2400 rpm **Turbo boost** nominal 10-13 psi (69-90 kPa) as measured 10.0 psi (69 kPa)

**CHASSIS**: **Type** front wheel assist **Serial No.** *RW4055P001000* **Tread width** rear 62.0" (1574 mm) to 110.2" (2800 mm) front 60.6" (1538 mm) to 88.0" (2235 mm) **Wheel base** 105.3" (2675 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.41 (2.27) second 2.02 (3.25) third 2.58 (3.83) fourth 3.06 (4.93) fifth 3.53 (5.68) sixth 4.01 (6.45) seventh 4.61 (7.43) eighth 5.17 (8.32) ninth 5.96 (9.58) tenth 6.76 (10.88) eleventh 7.79 (12.53) twelfth 8.94 (14.38) thirteenth 11.06 (17.80) fourteenth 15.08 (24.27) fifteenth 18.65 (30.02) reverse 1.72 (2.76) 2.46 (3.96) 3.73 (6.01) 5.62 (9.05) **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm **Unladen tractor mass** 13955 lb (6330 kg)

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp/hr kg/kW/h | Hp hr per gal kW h/l | Temp °F °C coolant | Air °F °C built | Baro in Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | |
| 78.06 58.21 | 13958 62.09 | 2.11 3.39 | 3285 | 13.90 | 0.585 0.356 | 11.92 2.53 | 179 82 | 54 12 | 29.05 98.32 |
| **4th Gear** | | | | | | | | | |
| 90.97 67.83 | 12901 57.39 | 2.76 4.44 | 2143 | 6.87 | 0.505 0.308 | 13.74 2.92 | 179 82 | 55 13 | 29.04 98.29 |
| **5th Gear** | | | | | | | | | |
| 93.93 70.04 | 12158 54.09 | 2.89 4.65 | 1948 | 6.80 | 0.478 0.291 | 14.45 3.07 | 185 85 | 61 16 | 29.02 98.23 |
| **6th Gear** | | | | | | | | | |
| 90.52 67.51 | 10732 47.73 | 3.34 5.38 | 1932 | 5.21 | 0.470 0.286 | 14.69 3.12 | 184 84 | 63 17 | 29.01 98.24 |
| **7th Gear** | | | | | | | | | |
| 86.51 64.51 | 9283 41.29 | 3.80 6.12 | 1932 | 4.05 | 0.466 0.284 | 14.82 3.15 | 180 82 | 70 21 | 28.92 97.95 |
| **8th Gear** | | | | | | | | | |
| 94.24 70.28 | 8059 35.85 | 4.40 7.08 | 1950 | 3.48 | 0.475 0.289 | 14.53 3.09 | 185 85 | 70 21 | 28.93 97.97 |
| **9th Gear** | | | | | | | | | |
| 94.37 70.37 | 6934 30.84 | 5.09 8.19 | 1948 | 2.55 | 0.474 0.288 | 14.59 3.10 | 185 85 | 70 21 | 28.94 98.00 |
| **10th Gear** | | | | | | | | | |
| 93.53 69.74 | 6023 26.79 | 5.81 9.35 | 1955 | 2.42 | 0.482 0.293 | 14.34 3.05 | 184 84 | 63 17 | 28.99 98.17 |
| **11th Gear** | | | | | | | | | |
| 93.34 69.60 | 5227 23.25 | 6.71 10.80 | 1950 | 2.10 | 0.481 0.293 | 14.37 3.05 | 184 84 | 68 20 | 28.95 98.03 |
| **12th Gear** | | | | | | | | | |
| 93.30 69.57 | 4651 20.69 | 7.72 12.42 | 1947 | 1.77 | 0.467 0.284 | 14.79 3.14 | 185 85 | 70 21 | 28.96 98.07 |
| **13th Gear** | | | | | | | | | |
| 92.69 69.12 | 3622 16.11 | 9.60 15.44 | 1951 | 1.45 | 0.485 0.296 | 14.32 3.04 | 184 84 | 70 21 | 28.95 98.04 |

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp/hr kg/kW/h | Hp hr per gal kW h/l | Temp °F °C coolant | Air °F °C built | Baro in Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | |
| 78.09 58.23 | 13950 62.05 | 2.10 3.38 | 2256 | 14.34 | 0.585 0.356 | 11.81 2.51 | 179 82 | 51 11 | 29.03 98.31 |
| **4th Gear** | | | | | | | | | |
| 89.92 67.05 | 11764 52.33 | 2.86 4.61 | 2201 | 5.74 | 0.510 0.310 | 13.55 2.88 | 180 82 | 48 9 | 29.04 98.34 |
| **5th Gear** | | | | | | | | | |
| 91.53 68.25 | 10243 45.56 | 3.54 5.70 | 2202 | 4.58 | 0.504 0.306 | 13.72 2.92 | 182 83 | 60 16 | 29.02 98.27 |
| **6th Gear** | | | | | | | | | |
| 91.73 68.42 | 9023 40.14 | 4.21 6.78 | 2198 | 3.93 | 0.499 0.304 | 13.85 2.94 | 182 83 | 62 17 | 29.01 98.24 |
| **7th Gear** | | | | | | | | | |
| 92.79 69.19 | 7848 34.91 | 4.43 7.14 | 2201 | 5.32 | 0.495 0.300 | 92 14.02 2.96 | 185 85 | 70 21 | 28.95 98.02 |
| **8th Gear** | | | | | | | | | |
| 90.23 67.28 | 6785 30.17 | 5.09 8.19 | 2199 | 2.75 | 0.509 0.309 | 13.62 2.89 | 184 84 | 70 21 | 28.93 97.97 |
| **9th Gear** | | | | | | | | | |
| 89.69 66.88 | 5826 25.91 | 5.77 9.29 | 2199 | 2.34 | 0.508 0.309 | 13.59 2.88 | 184 84 | 70 21 | 28.94 97.98 |
| **10th Gear** | | | | | | | | | |
| 89.28 66.58 | 5097 22.67 | 6.58 10.59 | 2202 | 2.01 | 0.510 0.310 | 13.54 2.87 | 182 83 | 70 21 | 28.93 97.94 |
| **11th Gear** | | | | | | | | | |
| 87.55 65.27 | 4310 19.17 | 7.60 12.23 | 2200 | 1.68 | 0.522 0.317 | 13.24 2.81 | 183 84 | 66 19 | 28.98 98.14 |
| **12th Gear** | | | | | | | | | |
| 89.08 66.40 | 3862 17.18 | 8.74 14.06 | 2201 | 1.52 | 0.511 0.311 | 13.53 2.87 | 185 85 | 69 21 | 28.96 98.07 |

**REPAIRS AND ADJUSTMENTS**: No repairs or adjustments.

**REMARKS**: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 122° F (50° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 6550 lb (2971 kg) or 8470 lb (3842 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1617**, Summary 055, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—7th Gear | 74.3 |
| Maximum sound level | 75.8 |
| Transport speed—no load—13th Gear | 77.0 |
| Bystander in 13th Gear | 67.0 |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2202 | 2479 | 2757 | 3341 | 3320 | 3101 |
|---|---|---|---|---|---|---|
| Pull—lbs | 5087 | 5061 | 6437 | 6002 | 7041 | 7029 |
| kN | 22.63 | 26.52 | 28.72 | 26.66 | 31.32 | 31.27 |
| Increase in Pull % | 0 | 17 | 27 | 32 | 38 | 38 |
| Power—Hp | 80.28 | 93.63 | 99.83 | 83.96 | 75.36 | 61.12 |
| kW | 66.58 | 69.82 | 67.90 | 62.61 | 54.71 | 45.58 |
| Speed—Mph | 6.38 | 5.89 | 5.22 | 4.57 | 3.91 | 3.26 |
| km/h | 10.39 | 9.48 | 8.40 | 7.35 | 6.29 | 5.25 |
| Slip % | 2.91 | 2.34 | 2.31 | 2.83 | 2.99 | 2.83 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

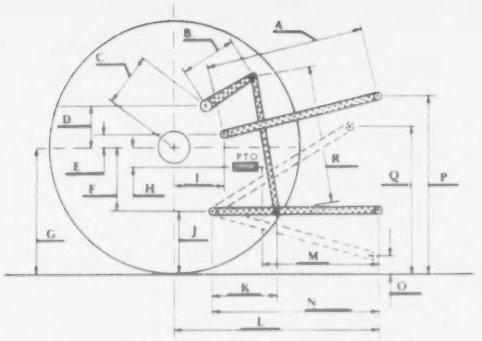
| | | | | | | |
|---|---|---|---|---|---|---|
| Observed Maximum Pressure psi (Bar) | | | | | 2360 (176) | |
| Location | | | | | remote outlet | |
| Hydraulic oil temperature °F(°C) | | | | | 142 (61) | |
| Location | | | | | transmission sump | |
| Category | | | | | II | |
| Quick attach | | | | | No | |
| Hitch point distance to ground level in (mm) | 8.7 (221) | 15.7 (399) | 22.4 (569) | 30.1 (772) | 37.4 (950) | |
| Lift force on frame lb | 7530 | 7482 | 7109 | 6526 | 6025 | |
| kN | 33.5 | 33.3 | 31.6 | 29.0 | 26.8 | |
| with lift assist cylinder | | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 22.5 (566) | 30.4 (772) | 37.8 (950) | |
| Lift force on frame lb | 9833 | 9872 | 9540 | 8633 | 8077 | |
| kN | 43.7 | 43.9 | 42.4 | 38.4 | 35.9 | |

| TIRES AND WEIGHT | | Tested Without Ballast |
|---|---|---|
| Rear Tires | —No. size, psi & psi (kPa) | Two 18.4R38 * 16 (110) |
| Front Tires | —No. size, psi & psi (kPa) | Two 14.9R26 *** 30 (205) |
| Height of Drawbar | | 17.0 in 430 mm |
| Static Weight | —Rear | 8300 lb 3992 kg |
| | —Front | 4575 lb 2418 kg |
| | —Total | 12,955 lb 6410 kg |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

| | |
|---|---|
| CATEGORY II | |
| Quick Attach: None | |
| Maximum Force Exerted Through Whole Range | 5504 lbs (24.5 kN) |
| | *7281 lbs (32.4 kN) |
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2560 psi (176 Bar) |
| ii) Pump delivers rate at minimum pressure | 27.0 GPM (102.2 l/min) |
| iii) Pump delivers rate at maximum | |
| hydraulic power | 26.1 GPM (98.8 l/min) |
| Delivers pressure | 2100 psi (145 Bar) |
| Power | 32.0 Hp (23.8 kW) |

*with lift assist cylinder




| | inch | mm |
|---|---|---|
| A | 29.6 | 670 |
| B | 11.5 | 292 |
| C | 11.5 | 292 |
| D | 10.9 | 276 |
| E | 5.5 | 140 |
| F | 10.2 | 259 |
| G | 33.1 | 842 |
| H | 6.5 | 165 |
| I | 19.5 | 495 |
| J | 22.9 | 581 |
| K | 23.1 | 587 |
| L | 41.2 | 1046 |
| M | 21.6 | 549 |
| N | 36.7 | 932 |
| O | 8.1 | 207 |
| P | 43.0 | 1091 |
| Q | 33.5 | 851 |
| R | 32.8 | 833 |

HITCH DIMENSIONS AS TESTED—NO LOAD

**John Deere 4055 Powershift Diesel**

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1618—SUMMARY 056
# JOHN DEERE 4255 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp·hr kg/kW·h | Hp·hr/gal kW·h/l | Temp. °F cool'g med. | Air dis. manif. | Barom. inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| — MAXIMUM POWER AND FUEL CONSUMPTION | | | | | | | | | |
| Rated Engine Speed—PTO speed—1002 rpm: | | | | | | | | | |
| 125.36 93.48 | 2240 9.96 | 7.34 11.81 | 2411 | 10.82 | | | | | |
| Maximum Power (2 Hours): | | | | | | | | | |
| 126.04 94.00 | 8999 40.03 | 7.24 11.65 | 2411 | 10.31 | | | | | |
| VARYING POWER AND FUEL CONSUMPTION | | | | | | | | | |
| 125.36 93.48 | 2240 9.96 | 7.34 11.81 | 2411 | 10.82 | | | | | |
| 107.37 80.07 | 2240 9.96 | 6.41 10.31 | 2106 | 7.91 | | | | | |
| 82.02 61.16 | 2242 9.97 | 5.01 8.06 | 1645 | 4.12 | | | | | |
| 55.42 41.33 | 2243 9.98 | 3.39 5.46 | 1113 | 1.92 | Barometer: | | | | |
| 27.98 20.86 | 2343 10.42 | 1.76 2.83 | 578 | 0.50 | 29.75 in Hg (97.26 kPa) | | | | |
| 0.26 0.19 | 2367 10.53 | 0.02 0.03 | 466.852 48.880 | 0.10 0.10 | | | | | |

Maximum Torque 564 lb·ft (765 N·m) at 1550 rpm
Maximum Torque Rise 36.5%
Torque Rise at 1000 engine rpm 23%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp·hr kg/kW·h | Hp·hr/gal kW·h/l | Temp. °F cool'g med. | Air dis. manif. | Barom. inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| Maximum Power—7th Gear | | | | | | | | | |
| 104.28 77.76 | 8875 39.47 | 4.41 7.09 | 2199 | 5.72 | 0.482 0.293 | 14.35 2.41 | 188 87 | 72 22 | 28.99 98.12 |
| 75% of Pull at Maximum Power—7th Gear | | | | | | | | | |
| 81.87 61.05 | 6654 29.60 | 4.61 7.42 | 2273 | 2.86 | 0.328 0.199 | 13.86 2.34 | 183 84 | 72 22 | 28.99 98.12 |
| 50% of Pull at Maximum Power—7th Gear | | | | | | | | | |
| 59.05 44.03 | 4440 19.75 | 4.75 7.64 | 2309 | 1.60 | 0.321 0.195 | 13.81 2.33 | 181 83 | 72 22 | 28.99 98.12 |
| 75% of Pull at Reduced Engine Speed—9th Gear | | | | | | | | | |
| 81.81 60.98 | 6654 29.60 | 4.60 7.40 | 1757 | 2.90 | 0.475 0.289 | 14.33 2.42 | 185 85 | 72 22 | 28.99 98.12 |
| 50% of Pull at Reduced Engine Speed—9th Gear | | | | | | | | | |
| 55.96 41.73 | 4438 19.74 | 4.73 7.61 | 1789 | 1.69 | 0.319 0.194 | 12.93 2.19 | 180 82 | 72 22 | 28.99 98.12 |

**Location of Test**: Centers for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test**: April-May, 1989.

**Manufacturer**: John Deere Waterloo Works, P.O. Box 5100, Waterloo, Iowa 50704.

**FUEL, OIL and TIME**: **Fuel** No. 2 Diesel **Cetane No.** 51.3 **Specific gravity corrected to 60/60 F (15.5/15.5 C)** 0.8340 **Fuel weight** 6.952 lbs/gal (0.828 kg/l) **Oil SAE** 15W-40 **API service classification** CI-4/SJ **To motor** 3.820 gal (14.458 l) **Drained from motor** 3.695 gal (13.980 l) **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hi-Load Lubricant 85W-140 **Total time engine was operated** 253 hours.

**ENGINE**: **Make** John Deere Diesel **Type** six cyl. under vertical with turbocharger **Serial No.** *RG4056T107096* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.567" × 4.75" (115.9 mm × 120.7 mm) **Compression ratio** 16.0 to 1 **Displacement** 466 cu in (7634 cc) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS**: **Fuel rate** 49.6/34.1 lb/hr (22.5/15.5 kg/hr) **High idle** 2350/2400 rpm **Turbo boost** nominal 12-15 psi (83-103 kPa) as measured 12.2 psi (84 kPa).

**CHASSIS**: **Type** front wheel assist **Serial No.** *RW4253P001050* **Tread width** rear 62.0" (1574 mm) to 110.2" (2800 mm) front 60.6" (1538 mm) to 88.0" (2235 mm) **Wheel base** 105.3" (2675 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.43 (2.27) second 2.02 (3.25) third 2.38 (3.85) fourth 3.06 (4.93) fifth 3.53 (5.68) sixth 4.01 (6.45) seventh 4.61 (7.43) eighth 5.17 (8.32) ninth 5.96 (9.58) tenth 6.76 (10.88) eleventh 7.79 (12.53) twelfth 8.94 (14.38) thirteenth 11.06 (17.80) fourteenth 15.08 (24.27) fifteenth 18.65 (30.02) reverse 1.72 (2.76) 2.46 (3.96) 3.73 (6.01) 5.62 (9.05) **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm **Unladen tractor mass** 14050 lb (6373 kg).

## DRAWBAR PERFORMANCE AT 2000 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp·hr kg/kW·h | Hp·hr/gal kW·h/l | Temp. °F cool'g med. | Air dis. manif. | Barom. inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| 4th Gear | | | | | | | | | |
| 93.89 70.01 | 13548 60.26 | 2.60 4.19 | 2190 | 14.25 | 0.540 0.329 | 12.93 2.19 | 185 85 | 63 17 | 29.00 98.13 |
| 5th Gear | | | | | | | | | |
| 104.00 77.55 | 12577 55.95 | 3.10 4.99 | 2100 | 7.37 | 0.483 0.294 | 14.21 2.41 | 187 86 | 70 21 | 29.00 98.13 |
| 6th Gear | | | | | | | | | |
| 106.24 79.22 | 11789 52.44 | 3.58 5.44 | 2098 | 5.08 | 0.472 0.287 | 14.59 2.47 | 187 86 | 67 19 | 29.00 98.13 |
| 7th Gear | | | | | | | | | |
| 104.43 77.88 | 10289 45.77 | 4.09 6.42 | 2001 | 4.26 | 0.472 0.287 | 15.12 2.56 | 186 86 | 63 17 | 29.00 98.13 |
| 8th Gear | | | | | | | | | |
| 106.45 79.38 | 9857 43.85 | 4.50 7.24 | 1997 | 3.40 | 0.469 0.285 | 14.73 2.49 | 185 85 | 63 17 | 29.00 98.13 |
| 9th Gear | | | | | | | | | |
| 106.41 79.35 | 7644 34.00 | 5.22 8.40 | 2003 | 2.92 | 0.470 0.286 | 14.72 2.49 | 188 87 | 67 19 | 29.00 98.13 |
| 10th Gear | | | | | | | | | |
| 106.59 79.48 | 6731 29.94 | 5.94 9.55 | 1999 | 2.51 | 0.469 0.285 | 14.73 2.49 | 186 86 | 69 21 | 29.00 98.13 |
| 11th Gear | | | | | | | | | |
| 106.01 79.05 | 5782 25.72 | 6.88 11.06 | 2000 | 2.10 | 0.472 0.287 | 14.63 2.48 | 187 86 | 69 21 | 29.01 98.14 |
| 12th Gear | | | | | | | | | |
| 108.93 81.23 | 5164 22.97 | 7.91 12.73 | 2000 | 1.77 | 0.456 0.277 | 15.16 2.56 | 188 87 | 70 21 | 29.00 98.13 |
| 13th Gear | | | | | | | | | |
| 105.86 78.94 | 4058 18.05 | 9.85 15.85 | 2000 | 1.36 | 0.471 0.286 | 14.67 2.48 | 188 87 | 71 22 | 28.99 98.12 |

## DRAWBAR PERFORMANCE AT 2000 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp·hr kg/kW·h | Hp·hr/gal kW·h/l | Temp. °F cool'g med. | Air dis. manif. | Barom. inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| 3rd Gear | | | | | | | | | |
| 85.79 63.97 | 15746 70.04 | 2.04 3.29 | 2249 | 14.53 | 0.573 0.349 | 12.05 2.03 | 186 86 | 72 22 | 28.67 97.09 |
| 4th Gear | | | | | | | | | |
| 101.77 75.89 | 14006 62.30 | 2.72 4.39 | 2122 | 7.16 | 0.493 0.300 | 14.01 2.36 | 188 87 | 70 21 | 28.68 97.12 |
| 5th Gear | | | | | | | | | |
| 104.45 77.89 | 13074 58.16 | 3.00* 4.82 | 2000 | 6.03 | 0.477 0.290 | 14.49 2.45 | 189 87 | 71 22 | 28.68 97.12 |
| 6th Gear | | | | | | | | | |
| 105.74 78.85 | 11492 51.12 | 3.43 5.55 | 2001 | 4.72 | 0.470 0.286 | 14.70 2.49 | 190 88 | 83 28 | 28.69 97.16 |
| 7th Gear | | | | | | | | | |
| 107.82 80.40 | 10019 44.57 | 4.04 6.49 | 2002 | 5.50 | 0.460 0.280 | 15.01 2.54 | 187 86 | 71 22 | 28.66 97.05 |
| 8th Gear | | | | | | | | | |
| 105.40 78.60 | 8727 38.82 | 4.58 7.29 | 2002 | 2.97 | 0.474 0.288 | 14.58 2.47 | 190 88 | 81 27 | 28.64 96.99 |
| 9th Gear | | | | | | | | | |
| 105.08 78.36 | 7509 33.40 | 5.25 8.45 | 2005 | 2.48 | 0.475 0.289 | 14.56 2.47 | 191 88 | 81 27 | 28.64 96.99 |
| 10th Gear | | | | | | | | | |
| 104.98 78.29 | 6592 29.32 | 5.97 9.61 | 2001 | 2.32 | 0.478 0.291 | 14.47 2.45 | 189 87 | 76 24 | 28.64 96.99 |
| 11th Gear | | | | | | | | | |
| 104.73 78.10 | 5690 25.31 | 6.90 11.11 | 2002 | 1.99 | 0.477 0.290 | 14.50 2.46 | 191 88 | 92 33 | 28.64 96.99 |
| 12th Gear | | | | | | | | | |
| 107.41 80.09 | 5074 22.57 | 7.94 12.78 | 2002 | 1.74 | 0.464 0.282 | 14.88 2.53 | 190 88 | 81 27 | 28.64 96.99 |
| 13th Gear | | | | | | | | | |
| 104.00 77.55 | 3955 17.59 | 9.86 15.87 | 2002 | 1.35 | 0.481 0.292 | 14.38 2.43 | 191 88 | 83 28 | 28.64 96.99 |

**REPAIRS AND ADJUSTMENTS**: No repairs or adjustments.

**REMARKS**: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 121° F (49° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 6550 lb (2971 kg) on 8470 lb (3842 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD accepted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1618**, Summary 056, December 22, 1989.

LOUIS E. LEVITICUS
Engineer in Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOEFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power (Hp) | Drawbar pull (lbs) | Speed (mph) | Clutch slip (%) | kg | Fuel Consumption lb/hp-hr g/kW-hr | Hp | kW | lbs | kg | Ballast lbs |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1st Gear | | | | | |
| | | | | | 2nd Gear | | | | | |
| | | | | | 3rd Gear | | | | | |
| | | | | | 4th Gear | | | | | |
| | | | | | 5th Gear | | | | | |
| | | | | | 6th Gear | | | | | |
| | | | | | 7th Gear | | | | | |
| | | | | | 8th Gear | | | | | |
| | | | | | 9th Gear | | | | | |
| | | | | | 10th Gear | | | | | |
| | | | | | 11th Gear | | | | | |
| | | | | | 12th Gear | | | | | |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 1.7 mph (2.7 km/h)—10th Gear | |
| Maximum sound level | |
| Transport speed—no load—13th Gear | |
| Bystander on 13th Gear | |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2197 | 1983 | 1765 | 1542 | 1323 | 1101 |
|---|---|---|---|---|---|---|
| Pull—lbs | 5707 | 6645 | 7265 | 7519 | 7761 | 7525 |
| kN | 25.39 | 29.56 | 32.32 | 33.45 | 34.52 | 33.46 |
| Increase in Pull % | 0 | 16 | 27 | 32 | 36 | 32 |
| Power—Hp | 100.08 | 104.89 | 101.57 | 91.86 | 81.36 | 65.63 |
| kW | 74.63 | 78.21 | 75.74 | 68.50 | 60.67 | 48.94 |
| Speed—Mph | 6.36 | 5.92 | 5.24 | 4.58 | 3.93 | 3.27 |
| km/h | 10.38 | 9.59 | 8.44 | 7.37 | 6.33 | 5.27 |
| Slip % | 2.08 | 2.52 | 2.48 | 2.63 | 2.61 | 2.65 |

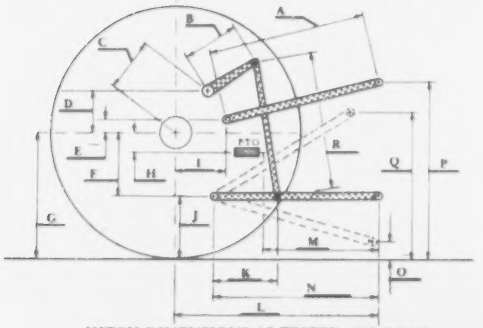
## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| Observed Maximum Pressure psi (bar) | | | | | 2520 (174) |
|---|---|---|---|---|---|
| Location | | | | | remote outlet |
| Hydraulic oil temperature °F(°C) | | | | | 142 (61) |
| Location | | | | | transmission sump |
| Category | | | | | II |
| Quick attach | | | | | No |
| Hitch point distance to ground level in. (mm) | 8.5 (221) | 15.7 (399) | 22.4 (569) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb. | 7530 | 7482 | 7196 | 6326 | 6175 |
| kN | 33.49 | 33.28 | 32.01 | 28.14 | 27.47 |
| | | | sixth lift assist cylinder | | |
| Hitch point distance to ground level in. (mm) | 8.6 (229) | 16.0 (406) | 22.5 (566) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb. | 9833 | 9672 | 9340 | 9033 | 8977 |
| kN | 43.7 | 43.0 | 41.5 | 40.2 | 39.9 |

| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires | | |
| Ballast | | |
| | | |
| Front Tires | | |
| Ballast | | |
| | | |
| Height of Drawbar | | |
| Static Weight Rear | | |
| Front | | |
| Total | | |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

| CATEGORY II | |
|---|---|
| Quick Attach: None | |
| Maximum Force Exerted Through Whole Range | 14,330 lbs 21,945 kN |
| | 15,160 lbs 13,945 kN |
| a. Opening pressure of reset valve | NA |
| Sustained pressure with pump stalled | 2500 psi 172 Bar |
| b. Pump delivery rate at nominal pressure | 27.1 GPM 102.6 l/min |
| c. Pump delivery rate at maximum hydraulic power | 26.2 GPM 99.2 l/min |
| Delivery pressure | 2040 psi 140 Bar |
| Power | 31.5 Hp 23.4 kW |
| | (with lift assist cylinder) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 26.0 | 656 |
| B | 11.5 | 292 |
| C | 11.5 | 292 |
| D | 10.9 | 276 |
| E | 5.6 | 143 |
| F | 10.1 | 256 |
| G | 33.1 | 842 |
| H | 6.5 | 165 |
| I | 14.5 | 362 |
| J | 22.9 | 583 |
| K | 23.1 | 587 |
| L | 41.6 | 1056 |
| M | 22.0 | 558 |
| N | 37.1 | 942 |
| O | 8.3 | 211 |
| P | 43.0 | 1091 |
| Q | 35.5 | 901 |
| R | 32.8 | 833 |

**John Deere 4255 Powershift Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1619—SUMMARY 057
# JOHN DEERE 4455 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel flow lb/hr (kg/h) | Fuel cons. lb/hp-hr (kg/kW-h) | Mass Atmospheric Conditions |
|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | |
| **Rated Engine Speed—PTO speed—1002 rpm:** | | | | |
| 141.66 (105.64) | 2200 | 8.39 (3.81) | 0.409 (0.249) | 16.89 (7.66) |
| **Maximum Power (2 Hours):** | | | | |
| 146.90 (109.51) | 1830 | 9.05 (4.11) | 0.379 (0.231) | 16.24 (7.37) |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | Air temperature |
| 141.66 (105.64) | 2200 | 8.39 (3.81) | 0.409 (0.249) | 16.89 (7.66) | 77°F (25°C) |
| 122.65 (91.47) | 2243 | 7.55 (3.43) | 0.429 (0.261) | 16.27 (7.38) | Relative humidity |
| 95.53 (69.59) | 2276 | 6.29 (2.85) | 0.496 (0.301) | 14.83 (6.73) | 28% |
| 69.12 (51.54) | 2310 | 5.05 (2.29) | 0.551 (0.335) | 12.54 (5.69) | Barometer |
| 51.94 (21.82) | 2336 | 3.78 (1.72) | 0.817 (0.497) | 8.46 (3.84) | 29.12" Hg (98.61 kPa) |
| 0.51 (0.38) | 2363 | 2.36 (1.07) | 54.526 (33.092) | 0.29 (0.13) | |

Maximum Torque: 444 lb-ft (602 Nm) at 1700 rpm
Maximum Torque Rise: 31.4%
Torque Rise at 1900 engine rpm: 25%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) cool'g med. | Air dry | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—12th Gear** | | | | | | | | | |
| 122.53 (91.37) | 5120 (22.80) | 8.98 (14.45) | 2199 | 2.41 | 0.475 (0.288) | 14.62 (2.88) | 188 (87) | 74 (23) | 28.84 (97.66) |
| **75% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 94.76 (70.62) | 5843 (17.09) | 9.24 (14.87) | 2254 | 1.80 | 0.518 (0.315) | 13.55 (2.67) | 190 (87) | 76 (24) | 28.84 (97.66) |
| **50% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 64.58 (48.16) | 2562 (11.40) | 9.45 (15.21) | 2291 | 1.17 | 0.611 (0.371) | 11.52 (2.27) | 184 (84) | 77 (25) | 28.84 (97.66) |
| **75% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 94.72 (70.64) | 5843 (17.09) | 9.24 (14.87) | 1821 | 1.51 | 0.676 (0.411) | 14.51 (2.86) | 186 (86) | 76 (24) | 28.84 (97.66) |
| **50% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 64.53 (48.12) | 2565 (11.41) | 9.44 (15.20) | 1836 | 1.17 | 0.542 (0.330) | 12.75 (2.51) | 182 (83) | 80 (27) | 28.84 (97.66) |

**Location of Test:** Center for Agricultural Equipment, Lincoln Nebraska 68583-0832, U.S.A.

**Dates of Test:** April-May, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60° 60°F** (15° 15°C) 0.8501 **Fuel weight** 6.912 lbs/gal (0.828 kg/l) **Oil SAE** 15W-40 **API service classification** CD/SD **To motor** 4.166 gal (15.768 l) **Drained from motor** 4.122 gal (15.605 l) **Transmission and hydraulic lubricant** John Deere HyGard fluid **Front axle lubricant** John Deere GL-5 Gear Lubricant 85W-140 **Total time engine was operated** 50.0 hours.

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6076T102604* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.567" × 4.75" (115.8 mm × 120.7 mm) **Compression ratio** 16.0 to 1 **Displacement** 466 cu in (7634 cc) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 56.3-61.5 lb/hr (25.6-27.9 kg/hr) **High idle** 2550-2400 rpm **Turbo boost** nominal 14-17 psi (97-117 kPa) as measured 14.5 psi (100 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** *RW4455P001020* **Tread width** rear 62.0" (1574 mm) to 116.0" (2950 mm) front 60.6" (1538 mm) to 88.0" (2235 mm) **Wheel base** 105.5" (2675 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.45 (2.34) second 2.08 (3.35) third 2.51 (4.05) fourth 3.16 (5.08) fifth 3.64 (5.86) sixth 4.15 (6.65) seventh 4.76 (7.66) eighth 5.47 (8.80) ninth 6.50 (10.11) tenth 7.15 (11.50) eleventh 8.25 (13.25) twelfth 9.21 (14.82) thirteenth 11.40 (18.35) fourteenth 15.94 (25.66) fifteenth 19.75 (31.75) reverse 2.01 (3.24) 2.88 (4.64) 4.57 (7.04) 6.39 (10.60) **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm **Unladen tractor mass** 15275 lb (6925 kg)

## DRAWBAR PERFORMANCE AT 1850 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) cool'g med. | Air dry | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **5th Gear** | | | | | | | | | |
| 115.25 (85.97) | 14200 (63.16) | 2.99 (4.81) | 2120 | 14.74 | 0.569 (0.346) | 13.66 (2.64) | 183 (84) | 68 (20) | 29.12 (99.01) |
| **9th Gear** | | | | | | | | | |
| 121.37 (90.56) | 12794 (56.91) | 5.36 (8.63) | 2083 | 8.53 | 0.467 (0.284) | 14.79 (2.86) | 183 (84) | 68 (20) | 29.12 (99.01) |
| **7th Gear** | | | | | | | | | |
| 125.13 (93.29) | 13864 (61.67) | 5.93 (9.54) | 1975 | 7.14 | 0.449 (0.273) | 15.40 (2.98) | 183 (84) | 68 (20) | 29.12 (99.01) |
| **8th Gear** | | | | | | | | | |
| 120.45 (89.80) | 10555 (46.95) | 4.92 (7.92) | 1848 | 3.86 | 0.458 (0.279) | 15.10 (2.92) | 180 (82) | 68 (20) | 29.12 (99.01) |
| **9th Gear** | | | | | | | | | |
| 122.81 (91.56) | 9134 (40.63) | 5.04 (8.11) | 1832 | 4.92 | 0.433 (0.263) | 15.38 (2.97) | 183 (84) | 68 (20) | 29.12 (99.01) |
| **10th Gear** | | | | | | | | | |
| 123.62 (92.16) | 8057 (35.84) | 5.17 (8.32) | 1832 | 3.87 | 0.440 (0.267) | 15.30 (2.96) | 184 (84) | 68 (20) | 29.12 (99.01) |
| **11th Gear** | | | | | | | | | |
| 122.93 (91.65) | 6897 (30.68) | 6.68 (10.76) | 1832 | 3.27 | 0.431 (0.262) | 15.54 (3.00) | 184 (84) | 68 (20) | 29.12 (99.01) |
| **12th Gear** | | | | | | | | | |
| 120.69 (89.97) | 6556 (29.16) | 7.50 (12.06) | 1851 | 2.93 | 0.437 (0.266) | 15.80 (3.05) | 184 (84) | 68 (20) | 29.12 (99.01) |
| **13th Gear** | | | | | | | | | |
| 124.55 (92.85) | 4969 (22.21) | 9.55 (15.62) | 1849 | 2.52 | 0.448 (0.272) | 15.44 (2.98) | 184 (84) | 68 (20) | 29.12 (99.01) |

## DRAWBAR PERFORMANCE AT 1850 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) cool'g | Air dry | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | |
| 100.17 (74.69) | 17566 (77.25) | 2.16 (3.48) | 2255 | 14.75 | 0.548 (0.334) | 12.66 (2.46) | 186 (86) | 72 (22) | 28.57 (96.73) |
| **4th Gear** | | | | | | | | | |
| 118.19 (88.14) | 15455 (68.75) | 2.87 (4.62) | 2176 | 7.70 | 0.488 (0.297) | 14.16 (2.75) | 186 (85) | 71 (22) | 28.57 (96.73) |
| **5th Gear** | | | | | | | | | |
| 122.40 (91.28) | 15064 (67.01) | 3.05 (4.90) | 2001 | 7.15 | 0.494 (0.282) | 14.00 (2.71) | 189 (87) | 72 (22) | 28.72 (97.26) |
| **6th Gear** | | | | | | | | | |
| 125.94 (93.92) | 14374 (63.95) | - (-) | 1851 | 6.25 | 0.455 (0.276) | 15.23 (2.95) | 187 (86) | 68 (20) | 28.72 (97.26) |
| **7th Gear** | | | | | | | | | |
| 126.10 (94.03) | 12474 (55.49) | 5.79 (9.32) | 1854 | 4.80 | 0.463 (0.284) | 15.01 (2.91) | 187 (86) | 69 (21) | 28.72 (97.26) |
| **8th Gear** | | | | | | | | | |
| 121.04 (90.26) | 10555 (46.95) | 4.59 (7.39) | 1851 | 3.48 | 0.462 (0.283) | 14.91 (2.89) | 190 (88) | 74 (23) | 28.72 (97.26) |
| **9th Gear** | | | | | | | | | |
| 121.52 (90.62) | 8959 (39.85) | 5.09 (8.19) | 1851 | 3.30 | 0.462 (0.283) | 14.90 (2.89) | 190 (88) | 76 (24) | 28.72 (97.26) |
| **10th Gear** | | | | | | | | | |
| 122.44 (91.31) | 7918 (35.22) | 5.80 (9.33) | 1852 | 2.96 | 0.455 (0.277) | 15.19 (2.94) | 190 (88) | 76 (24) | 28.72 (97.26) |
| **11th Gear** | | | | | | | | | |
| 120.62 (89.95) | 6755 (30.04) | 6.71 (10.80) | 1850 | 2.82 | 0.460 (0.280) | 15.02 (2.91) | 190 (88) | 75 (24) | 28.73 (97.29) |
| **12th Gear** | | | | | | | | | |
| 124.94 (93.17) | 6219 (27.66) | 7.53 (12.13) | 1854 | 2.56 | 0.449 (0.273) | 15.40 (2.98) | 189 (87) | 80 (27) | 28.73 (97.29) |
| **13th Gear** | | | | | | | | | |
| 120.97 (90.21) | 4846 (21.55) | 9.36 (15.07) | 1852 | 1.85 | 0.458 (0.278) | 15.10 (2.92) | 189 (87) | 85 (29) | 28.73 (97.29) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 129°F (54°C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted as approximately the same ambient air temperatures. This tractor did not meet manufacturers 8 point lift capacity claim of 9350 lb (2967 kg) or 8470 lb (3842 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1619**, Summary 057, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hr (kg/h) | Hp hr/gal (kW h/l) | Load % | Air cleaner restr. in/H2O (mm/H2O) | Ballast lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 3rd Gear | | | | | |
| 100.67 (75.08) | 17340 (77.14) | 2.12 (3.41) | 2237 | 14.33 | 0.748 (0.339) | 12.63 (9.42) | 100 | 73 | 28.72 (13.03) |
| | | | | 4th Gear | | | | | |
| 113.03 (84.30) | 15218 (67.70) | 2.91 (4.68) | 2199 | 7.91 | 0.855 (0.388) | 14.17 (10.57) | 100 | 73 | 28.72 (13.03) |
| | | | | 5th Gear | | | | | |
| 121.02 (90.26) | 13267 (59.02) | 3.42 (5.50) | 2204 | 5.47 | 0.878 (0.398) | 14.43 (10.76) | 100 | 70 | 28.72 (13.03) |
| | | | | 6th Gear | | | | | |
| 122.78 (91.56) | 12710 (56.54) | 3.62 (5.83) | 2200 | 4.96 | 0.871 (0.395) | 14.16 (10.56) | 97 | 66 | 28.72 (13.03) |
| | | | | 7th Gear | | | | | |
| 123.72 (92.26) | 12048 (53.60) | 3.83 (6.16) | 2200 | 3.91 | 0.868 (0.394) | 13.97 (10.42) | 96 | 65 | 28.72 (13.03) |
| | | | | 8th Gear | | | | | |
| 123.33 (91.97) | 11420 (50.80) | 4.05 (6.52) | 2200 | 3.33 | 0.856 (0.388) | 13.72 (10.23) | 93 | 58 | 28.72 (13.03) |
| | | | | 9th Gear | | | | | |
| 118.44 (88.32) | 10560 (46.97) | 4.19 (6.74) | 2200 | 2.79 | 0.855 (0.388) | 14.17 (10.57) | 100 | 73 | 28.72 (13.03) |
| | | | | 10th Gear | | | | | |
| 118.12 (88.08) | 9394 (41.79) | 4.95 (7.97) | 2200 | 2.48 | 0.850 (0.386) | 14.22 (10.60) | 100 | 76 | 28.72 (13.03) |
| | | | | 11th Gear | | | | | |
| 116.75 (87.06) | 8408 (37.40) | 5.61 (9.03) | 2199 | 2.09 | 0.849 (0.385) | 14.13 (10.54) | 100 | 74 | 28.73 (13.03) |
| | | | | 12th Gear | | | | | |
| 113.63 (84.73) | 7600 (33.81) | 6.07 (9.77) | 2198 | 1.83 | 0.829 (0.376) | 14.44 (10.77) | 100 | 82 | 28.73 (13.03) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—7th Gear | 74.5 |
| Maximum sound level | 76.5 |
| Transport speed—no load—15th Gear | 77.0 |
| Bystander in 15th Gear | 82.0 |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2200 | 1978 | 1755 | 1542 | 1321 | 1101 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 6394 (28.44) | 7221 (32.12) | 8502 (36.93) | 8501 (37.81) | 8502 (37.82) | 8180 (36.39) |
| Increase in Pull % | 0 | 15 | 30 | 33 | 33 | 28 |
| Power—Hp (kW) | 118.12 (88.09) | 119.60 (89.19) | 121.54 (90.63) | 109.23 (81.47) | 93.60 (69.80) | 75.07 (55.98) |
| Speed—Mph (km/h) | 6.95 (11.15) | 6.21 (10.00) | 5.49 (8.84) | 4.82 (7.76) | 4.15 (6.66) | 3.44 (5.54) |
| Slip % | 2.44 | 2.62 | 3.15 | 3.15 | 3.15 | 3.15 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

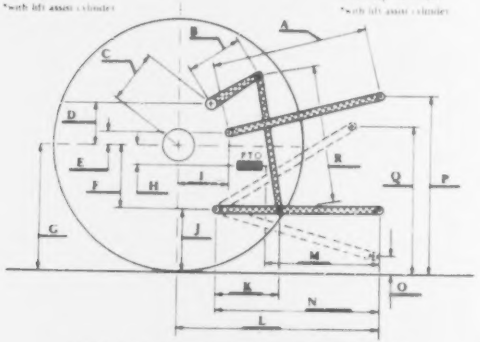
| | | | | | |
|---|---|---|---|---|---|
| Observed Maximum Pressure psi (bar) | | | 2530 (174) | | |
| Location | | | remote outlet | | |
| Hydraulic oil temperature °F (°C) | | | 144 (62) | | |
| Location | | | transmission sump | | |
| Category | | | II | | |
| Quick attach | | | No | | |
| Hitch point distance to ground level in (mm) | 8.7 (221) | 15.7 (399) | 22.4 (569) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kg) | 7550 (3426) | 7482 (3395) | 7109 (3225) | 6326 (2870) | 6175 (2802) |
| with lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 22.5 (566) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kg) | 9855 (4471) | 9872 (4478) | 9040 (4101) | 8035 (3645) | 6077 (2757) |

| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—Size, size, psi & psi (kPa) | Four 18.4R42 ** 32 (45) | Four 18.4R42 ** 16 (110) |
| Ballast—Dead load | 17200 lb 7779 kg | None |
| —Cast iron load | 10000 lb 4536 kg | None |
| Front Tires—Size, size, psi & psi (kPa) | Two 14.9R30 *** 36 (248) | Two 14.9R30 *** 36 (248) |
| Ballast—Tire fluid load | 1110 lb 503 kg | None |
| —Cast iron load | 700 lb 317 kg | None |
| Height of Drawbar | 18.5 in 470 mm | 18.5 in 470 mm |
| Static Weight—Rear | 32650 lb 14787 kg | 9650 lb 4373 kg |
| —Front | 16550 lb 7502 kg | 5400 lb 2449 kg |
| —Total | 49200 lb 22289 kg | 15275 lb 6924 kg |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY II
Quick Attach: None
Maximum Force Exerted Through Whole Range: 13004 lbs (24.5 kN)
57283 lbs (132.4 kN)

i) Opening pressure of relief valve: NA
Sustained pressure with pump stalled: 2530 psi (174 Bar)
ii) Pump delivers rate at minimum pressure: 27.0 GPM (102.2 l/min)
iii) Pump delivers rate at maximum:
Stabilizer power: 23.7 GPM (89.7 l/min)
Delivers pressure: 2100 psi (145 Bar)
Power: 33.3 Hp (24.8 kW)
With lift assist cylinder: With lift assist cylinder




| | inch | mm |
|---|---|---|
| A | 26.6 | 676 |
| B | 11.5 | 292 |
| C | 11.3 | 287 |
| D | 10.9 | 278 |
| E | 5.6 | 141 |
| F | 10.2 | 259 |
| G | 35.1 | 892 |
| H | 6.5 | 165 |
| I | 14.3 | 362 |
| J | 24.9 | 633 |
| K | 28.1 | 587 |
| L | 41.6 | 1056 |
| M | 22.0 | 558 |
| N | 37.1 | 942 |
| O | 10.3 | 262 |
| P | 45.0 | 1141 |
| Q | 37.5 | 951 |
| R | 32.8 | 833 |

**HITCH DIMENSIONS AS TESTED—NO LOAD**

**John Deere 4455 Powershift Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1620—SUMMARY 058
# JOHN DEERE 4555 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Speed (rpm) | Fuel (l/h) (kg/h) | Engine (l/h) (kg/h) | Tractor (l/h) (kg/h) | Main atmospheric indicator |
|---|---|---|---|---|---|
| | | | | | |

## MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—PTO speed—998 rpm:**

| | | | | | |
|---|---|---|---|---|---|
| 136.89 (102.09) | 2200 | 8.44 (31.93) | 0.948 (3.589) | 17.35 (65.66) | |

**Maximum Power (2 Hours):**

| | | | | | |
|---|---|---|---|---|---|
| 162.47 (121.17) | 1900 | 9.72 (36.79) | 0.971 (3.676) | 19.84 (75.09) | Air temperature |

## VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|---|---|---|---|---|
| 136.89 (102.09) | 2200 | 8.44 (31.93) | 0.948 (3.589) | 17.35 (65.66) | °C (°F) |
| 153.63 (114.58) | 2242 | 9.09 (34.41) | 0.407 (1.540) | 16.98 (64.26) | Relative humidity |
| 105.64 (78.78) | 2276 | 6.50 (24.59) | 0.440 (1.665) | 13.72 (51.92) | % |
| 70.36 (52.47) | 2325 | 5.25 (19.88) | 0.514 (1.945) | 13.43 (50.83) | Barometer |
| 35.35 (26.37) | 2356 | 3.82 (14.46) | 0.745 (2.820) | 9.51 (35.99) | 29.19 "Hg (98.54 kPa) |
| 0.77 (0.57) | 2389 | 2.45 (9.27) | 21.706 (82.157) | 0.92 (3.48) | |

Maximum Torque: 446 lb-ft (604.2 N-m) at 1600 rpm
Maximum Torque Rise: 32 %
Torque Rise at 1900 engine rpm: 23 %

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/l) | Temp. F (°C) cool | eng | Air dry | Barom. inch (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—12th Gear** | | | | | | | | | | |
| 151.40 (97.99) | 5811 (25.85) | 8.48 (13.65) | 2199 | 2.26 | 0.470 (0.286) | 14.76 (2.96) | 184 (84) | 72 (22) | | 28.82 (97.60) |
| **75% of Pull at Maximum Power—12th Gear** | | | | | | | | | | |
| 101.78 (75.90) | 4557 (19.18) | 8.76 (14.10) | 2257 | 1.64 | 0.504 (0.307) | 15.70 (2.79) | 184 (84) | 76 (24) | | 28.81 (97.56) |
| **50% of Pull at Maximum Power—12th Gear** | | | | | | | | | | |
| 69.64 (51.93) | 2986 (12.93) | 8.95 (14.40) | 2301 | 1.02 | 0.660 (0.365) | 11.53 (2.27) | 180 (82) | 76 (24) | | 28.81 (97.56) |
| **75% of Pull at Reduced Engine Speed—15th Gear** | | | | | | | | | | |
| 101.37 (75.56) | 4354 (19.17) | 8.75 (14.08) | 1822 | 1.64 | 0.468 (0.285) | 14.76 (2.91) | 183 (84) | 76 (24) | | 28.81 (97.56) |
| **50% of Pull at Reduced Engine Speed—15th Gear** | | | | | | | | | | |
| 69.85 (52.08) | 2916 (12.92) | 8.98 (14.46) | 1858 | 1.02 | 0.550 (0.322) | 13.05 (2.57) | 181 (83) | 76 (24) | | 28.81 (97.56) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** April-May, 1989.

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704.

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.8301 **Fuel weight** 6.912 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 5.455 gal *(20.564 l)* **Drained from motor** 5.255 gal *(19.809 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Front axle lubricant** John Deere GL-5 Gear Lubricant 85W-140 **Total time engine was operated** 29.5 hours.

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6076T102916* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.567" × 4.75" *(115.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 59.9-65.4 lb/hr *(27.2-29.7 kg/hr)* **High idle** 2350-2400 rpm **Turbo boost** nominal 15-18 psi *(103-124 kPa)* as measured 16.5 psi *(114 kPa)*

**CHASSIS: Type** front wheel assist **Serial No.** *RW4555P001019* **Tread width** rear 62.0" *(1574 mm)* to 115.7" *(2938 mm)* front 63.1" *(1603 mm)* to 85.3" *(2166 mm)* **Wheel base** 117.1" *(2974 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 1.58 *(2.22)* second 1.97 *(3.18)* third 2.58 *(3.84)* fourth 3.00 *(4.82)* fifth 3.43 *(5.55)* sixth 3.92 *(6.30)* seventh 4.51 *(7.26)* eighth 5.18 *(8.34)* ninth 5.97 *(9.61)* tenth 6.78 *(10.91)* eleventh 7.81 *(12.57)* twelfth 8.74 *(14.06)* thirteenth 10.81 *(17.40)* fourteenth 15.12 *(24.34)* fifteenth 18.71 *(30.11)* reverse 1.91 *(3.07)*, 2.75 *(4.40)*, 4.15 *(6.67)*, 6.25 *(10.06)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 998 rpm at 2200 engine rpm **Unladen tractor mass** 17755 lb *(8053 kg)*.

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/l) | Temp. F (°C) cool | eng | Air dry | Barom. inch (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| **5th Gear** | | | | | | | | | | |
| 120.54 (89.74) | 15595 (69.37) | 2.89 (4.66) | 2160 | 13.92 | 0.515 (0.313) | 13.48 (2.61) | 183 (84) | 50 (10) | | 28.63 (96.95) |
| **6th Gear** | | | | | | | | | | |
| 128.04 (95.32) | 14053 (62.50) | 3.42 (5.50) | 2140 | 9.59 | 0.492 (0.299) | 14.14 (2.73) | 183 (84) | 50 (10) | | 28.63 (96.95) |
| **7th Gear** | | | | | | | | | | |
| 132.62 (98.73) | 12792 (56.90) | 3.89 (6.26) | 2049 | 6.82 | 0.464 (0.282) | 14.88 (2.87) | 183 (84) | 50 (10) | | 28.63 (96.95) |
| **8th Gear** | | | | | | | | | | |
| 130.94 (97.48) | 11786 (52.43) | 4.17 (6.70) | 1969 | 6.11 | 0.462 (0.280) | 14.96 (2.89) | 184 (84) | 50 (10) | | 28.64 (96.99) |
| **9th Gear** | | | | | | | | | | |
| 134.05 (99.80) | 10975 (48.82) | 4.59 (7.39) | 1911 | 4.72 | 0.451 (0.274) | 15.32 (2.96) | 183 (84) | 50 (10) | | 28.63 (96.95) |
| **10th Gear** | | | | | | | | | | |
| 134.04 (99.80) | 10008 (44.51) | 5.06 (8.14) | 1902 | 4.05 | 0.451 (0.274) | 15.34 (2.96) | 180 (82) | 50 (10) | | 28.64 (96.99) |
| **11th Gear** | | | | | | | | | | |
| 133.06 (99.22) | 9687 (43.08) | 5.23 (8.42) | 1902 | 3.12 | 0.453 (0.276) | 15.25 (2.94) | 180 (82) | 50 (10) | | 28.62 (96.92) |
| **12th Gear** | | | | | | | | | | |
| 138.45 (103.24) | 9124 (40.59) | 5.29 (8.51) | 1902 | 2.86 | 0.454 (0.266) | 15.06 (2.91) | 180 (82) | 50 (10) | | 28.62 (96.92) |
| **13th Gear** | | | | | | | | | | |
| 135.47 (101.02) | 8592 (38.22) | 5.56 (8.95) | 1905 | 2.26 | 0.446 (0.271) | 15.49 (2.99) | 180 (82) | 51 (11) | | 28.62 (96.92) |

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/l) | Temp. F (°C) cool | eng | Air dry | Barom. inch (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | | |
| 113.78 (84.84) | 20875 (92.85) | 2.04 (3.29) | 2255 | 14.85 | 0.525 (0.319) | 13.18 (2.60) | 184 (84) | 50 (10) | | 29.01 (98.24) |
| **4th Gear** | | | | | | | | | | |
| 151.44 (98.02) | 18729 (83.31) | 2.65 (4.26) | 2126 | 8.58 | 0.472 (0.287) | 14.66 (2.89) | 184 (84) | 50 (10) | | 29.07 (98.44) |
| **5th Gear** | | | | | | | | | | |
| 152.57 (98.71) | 17978 (79.97) | 2.76 (4.44) | 1926 | 7.85 | 0.461 (0.281) | 14.98 (2.95) | 184 (84) | 55 (12) | | 29.06 (98.41) |
| **6th Gear** | | | | | | | | | | |
| 137.51 (102.54) | 16401 (72.95) | 3.14 (5.06) | 1899 | 6.19 | 0.445 (0.270) | 15.60 (3.07) | 183 (83) | 54 (12) | | 29.06 (98.41) |
| **7th Gear** | | | | | | | | | | |
| 140.10 (104.48) | 14269 (63.47) | 3.68 (5.93) | 1901 | 4.81 | 0.456 (0.265) | 15.86 (3.13) | 185 (85) | 55 (12) | | 29.07 (98.44) |
| **8th Gear** | | | | | | | | | | |
| 134.95 (100.63) | 11840 (52.66) | 4.27 (6.88) | 1903 | 5.81 | 0.455 (0.276) | 15.25 (3.00) | 185 (85) | 56 (13) | | 29.00 (98.21) |
| **9th Gear** | | | | | | | | | | |
| 134.15 (100.02) | 10152 (45.16) | 4.95 (7.97) | 1903 | 5.22 | 0.454 (0.276) | 15.21 (3.00) | 186 (85) | 56 (13) | | 28.99 (98.17) |
| **10th Gear** | | | | | | | | | | |
| 135.56 (101.07) | 9019 (40.12) | 5.64 (9.07) | 1901 | 2.88 | 0.448 (0.272) | 15.45 (3.04) | 185 (85) | 54 (12) | | 29.00 (98.41) |
| **11th Gear** | | | | | | | | | | |
| 134.55 (100.34) | 7757 (34.62) | 6.52 (10.50) | 1902 | 2.44 | 0.448 (0.272) | 15.45 (3.04) | 185 (85) | 57 (14) | | 28.99 (98.37) |
| **12th Gear** | | | | | | | | | | |
| 139.28 (103.86) | 7145 (31.77) | 7.31 (11.77) | 1902 | 2.56 | 0.455 (0.269) | 15.88 (3.13) | 185 (85) | 58 (14) | | 28.98 (98.34) |
| **13th Gear** | | | | | | | | | | |
| 135.19 (100.81) | 5587 (24.85) | 9.07 (14.60) | 1899 | 2.01 | 0.447 (0.272) | 15.48 (3.05) | 185 (85) | 58 (14) | | 28.98 (98.34) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125° F (52° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 5 point lift capacity claim of 8870 lb (4023 kg) or 9710 lb (4404 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1620**, Summary 058, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Clutch slip speed rpm | Slip % | Fuel Consumption US gal/h (L/h) | US gal/hp-h (L/kW-h) | Test No. | Barom. inch (mm) |
|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | |
| 114.27 (85.23) | 9942.9 (44.23) | 2.03 (3.27) | 2233 | 14.36 | 9.0 (34.1) | 0.3230 (0.433) | 183 | 30 (762) |
| 110.79 (82.63) | 9642.1 (42.89) | 2.03 (3.27) | 2233 | 13.94 | 8.9 (33.7) | 0.3220 (0.432) | 184 | 30 (762) |
| **4th Gear** | | | | | | | | |
| 140.74 (104.96) | 12250.6 (54.50) | 2.76 (4.44) | 2240 | 9.94 | 11.4 (43.2) | 0.3248 (0.435) | 183 | 30 (762) |
| 137.46 (102.51) | 11965.0 (53.23) | 2.76 (4.44) | 2240 | 9.72 | 11.3 (42.8) | 0.3297 (0.442) | 184 | 30 (762) |
| **5th Gear** | | | | | | | | |
| 152.33 (113.59) | 13258.5 (58.98) | 3.24 (5.21) | 2201 | 8.06 | 12.4 (46.9) | 0.3267 (0.438) | 183 | 29.97 (761) |
| 148.77 (110.94) | 12948.7 (57.60) | 3.24 (5.21) | 2201 | 7.84 | 12.3 (46.6) | 0.3317 (0.444) | 184 | 29.97 (761) |
| **6th Gear** | | | | | | | | |
| 154.70 (115.36) | 13470.6 (59.93) | 3.77 (6.07) | 2201 | 6.70 | 12.8 (48.5) | 0.3317 (0.444) | 183 | 29.96 (761) |
| 151.08 (112.66) | 13155.6 (58.53) | 3.77 (6.07) | 2201 | 6.49 | 12.7 (48.1) | 0.3370 (0.451) | 184 | 29.96 (761) |
| **7th Gear** | | | | | | | | |
| 153.08 (114.15) | 13330.1 (59.31) | 4.31 (6.94) | 2201 | 5.64 | 12.8 (48.5) | 0.3353 (0.449) | 183 | 29.97 (761) |
| 149.51 (111.49) | 13019.2 (57.92) | 4.31 (6.94) | 2201 | 5.46 | 12.7 (48.1) | 0.3407 (0.456) | 184 | 29.97 (761) |
| **8th Gear** | | | | | | | | |
| 129.23 (96.36) | 9743.3 (43.35) | 4.97 (8.00) | 2198 | 3.22 | 10.8 (40.9) | 0.3353 (0.449) | 183 | 30 (762) |
| 126.19 (94.09) | 9513.8 (42.33) | 4.97 (8.00) | | | 10.7 (40.5) | 0.3402 (0.455) | 184 | 30 (762) |
| **9th Gear** | | | | | | | | |
| 125.43 (93.53) | 8550.2 (38.04) | 5.76 (9.27) | 2199 | 2.70 | 10.4 (39.4) | 0.3328 (0.445) | 183 | 29.98 (761) |
| 122.57 (91.40) | 8357.0 (37.18) | 5.76 (9.27) | | | 10.3 (39.0) | 0.3370 (0.451) | 184 | 29.98 (761) |
| **10th Gear** | | | | | | | | |
| 129.74 (96.74) | 7430.1 (33.06) | 6.55 (10.54) | 2199 | 2.33 | 10.4 (39.4) | 0.3214 (0.430) | 183 | 29.98 (761) |
| 127.14 (94.80) | 7281.3 (32.40) | 6.55 (10.54) | | | 10.3 (39.0) | 0.3255 (0.436) | 184 | 29.98 (761) |
| **11th Gear** | | | | | | | | |
| 128.27 (95.65) | 6352.7 (28.26) | 7.37 (11.86) | 2199 | 2.10 | 10.3 (39.0) | 0.3185 (0.426) | 183 | 29.99 (761) |
| 125.67 (93.71) | 6223.5 (27.68) | 7.37 (11.86) | | | 10.2 (38.6) | 0.3222 (0.431) | 184 | 29.99 (761) |
| **12th Gear** | | | | | | | | |
| 131.46 (98.03) | 5805.7 (25.82) | 8.44 (13.58) | 2201 | 2.01 | 10.7 (40.5) | 0.3167 (0.424) | 184 | 29.98 (761) |
| 128.81 (96.05) | 5688.2 (25.30) | 8.44 (13.58) | | | 10.6 (40.1) | 0.3204 (0.429) | 185 | 29.98 (761) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—7th Gear | 76.5 |
| Maximum sound level | 77.0 |
| Transport speed—no load—15th Gear | 77.5 |
| Bystander in 15th Gear | 88.0 |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2198 | 1981 | 1763 | 1539 | 1321 | 1094 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 7430 (33.05) | 8602 (38.26) | 9696 (43.13) | 10143 (45.12) | 10012 (44.54) | 9573 (42.58) |
| Increase in Pull % | 0 | 16 | 30 | 37 | 35 | 29 |
| Power—Hp (kW) | 129.75 (96.74) | 134.94 (100.62) | 134.91 (100.60) | 122.96 (91.69) | 104.09 (77.62) | 82.61 (61.60) |
| Speed—Mph (km/h) | 6.55 (10.54) | 5.88 (9.47) | 5.22 (8.40) | 4.33 (7.12) | 3.90 (6.27) | 3.24 (5.21) |
| Slip % | 2.44 | 2.62 | 2.96 | 3.50 | 3.50 | 2.96 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | | | | | |
|---|---|---|---|---|---|
| Observed Maximum Pressure psi (bar) | | | | 2530 (176) | |
| Location | | | | remote outlet | |
| Hydraulic oil temperature °F (°C) | | | | 130 (54) | |
| Location | | | | hydraulic sump | |
| Category | | | | III | |
| Quick attach | | | | Yes | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
| Lift force on frame lb (kN) | 8700 (38.7) | 9228 (41.0) | 9432 (42.0) | 9944 (44.2) | 9283 (41.3) |
| with 1.44 mm lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
| Lift force on frame lb (kN) | 9866 (43.9) | 10570 (47.0) | 10854 (48.3) | 10224 (45.5) | 9411 (41.9) |
| with 1.55 mm lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
| Lift force on frame lb (kN) | 10518 (46.8) | 11434 (50.9) | 11576 (51.5) | 10737 (47.8) | 10041 (44.7) |

| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—No. size (ply & psi) (kPa) | 4 ea 18.4R42 *** 12 (83) | 4 ea 18.4R42 *** 16 (124) |
| Ballast—Duals (total) | 1720 lb (780 kg) | None |
| Cast Iron (total) | 2400 lb (1088 kg) | None |
| Front Tires—No. size (ply & psi) (kPa) | 4 ea 14.9R30 *** 30 (207) | 4 ea 14.9R30 *** 30 (207) |
| Ballast—Tire Fluid (total) | 1063 lb (485 kg) | None |
| —Cast Iron (total) | 1100 lb (499 kg) | None |
| Height of Drawbar | 18.5 in (470 mm) | 18.5 in (470 mm) |
| Static Weight—Rear | 13440 lb (6075 kg) | 11360 lb (5155 kg) |
| —Front | 7910 lb (3590 kg) | 6550 lb (2966 kg) |
| —Total | 21350 lb (9665 kg) | 17910 lb (8121 kg) |

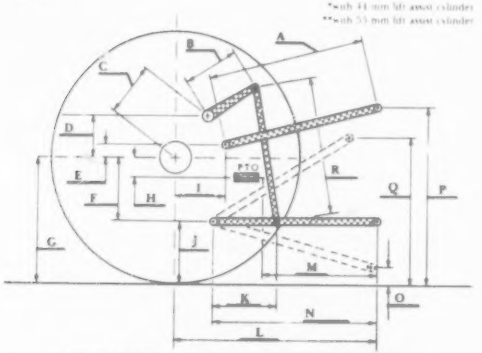
## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY III
Quick Attach Yes
Maximum force Exerted Through Whole Range

| | |
|---|---|
| | 6621 lbs (29.4 kN) |
| | 6621 lbs (29.4 kN) |
| | **5057 lbs (11.4 kN) |

i) Opening pressure of relief valve
Sustained pressure with pump stalled — 2530 psi (176 Bar)
ii) Pump delivers rate at minimum pressure and rated engine speed — 32.8 GPM (124.2 l/min)
iii) Pump delivers rate at maximum hydraulic power — 31.7 GPM (120.0 l/min)
Delivers pressure — 1790 psi (121 Bar)
Power — 92.4 Hp (24.3 kW)

*with 44 mm lift assist cylinder
**with 53 mm lift assist cylinder




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 28.1 | 714 |
| B | 18.4 | 468 |
| C | 12.9 | 327 |
| D | 12.9 | 327 |
| E | 6.8 | 172 |
| F | 13.0 | 330 |
| G | 35.1 | 892 |
| H | 7.0 | 177 |
| I | 15.1 | 384 |
| J | 22.1 | 562 |
| K | 28.2 | 716 |
| L | 44.3 | 1124 |
| L | 49.3 | 1251 |
| M | 22.3 | 565 |
| N | 38.1 | 968 |
| O | 9.1 | 231 |
| P | 44.1 | 1121 |
| Q | 41.5 | 1053 |
| R | 37.3 | 946 |

L to end of Quick attach

**John Deere 4555 Powershift Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1621—SUMMARY 059
# JOHN DEERE 4755 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel/hr lb (kg/h) | lb/hp·hr (kg/kW·h) | Hp/hr gal (kW·h/l) | Mean Atmospheric Conditions |
|---|---|---|---|---|---|

### MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—(PTO speed—998 rpm)**

| | | | | | |
|---|---|---|---|---|---|
| 127.06 (94.75) | 2200 | 9.75 (4.42) | 0.1860 (0.1139) | 18.20 (15.97) | |
| 132.04 (98.46) | | 10.82 (4.91) | 0.1931 (0.1182) | 17.96 (15.76) | |

**Maximum Power (2 Hours)**

| | | | | | |
|---|---|---|---|---|---|
| 128.06 (95.49) | 2000 | 9.61 (4.36) | 0.1872 (0.1146) | 18.02 (15.81) | Air temperature |

### VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|---|---|---|---|---|
| 127.06 (94.75) | 2200 | 9.75 (4.42) | 0.1860 (0.1139) | 18.20 (15.97) | 56°F (13°C) |
| 135.14 (100.79) | 2263 | 10.50 (4.76) | 0.1944 (0.1190) | 17.76 (15.58) | Relative humidity |
| 137.70 (102.70) | 2292 | 10.76 (4.88) | 0.1921 (0.1176) | 18.13 (15.91) | 19% |
| 79.31 (59.14) | 2525 | 5.31 (2.41) | 0.1479 (0.0905) | 14.42 (12.66) | Barometer |
| 40.16 (29.95) | 2815 | 3.86 (1.75) | 0.1665 (0.1019) | 10.40 (9.13) | 28.74" Hg (97.31 kPa) |
| 2.08 (1.55) | 2575 | 2.50 (1.13) | 7.651 (4.684) | 0.60 (0.53) | |

Maximum Torque 669 lb·ft (907 N·m) at 1400 rpm
Maximum Torque Rise 34.5%
Torque Rise at rated engine rpm 12%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp·hr (kg/kW·h) | Hp/hr gal (kW·h/l) | Temp. °F (°C) cool. eng med. | Air dry bulb | Barom. in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—12th Gear** | | | | | | | | | |
| 147.76 (110.19) | 6267 (27.88) | 8.84 (14.23) | 2201 | 2.43 | 0.455 (0.277) | 15.19 (12.99) | 186 (86) | 58 (14) | 29.07 (98.44) |
| **75% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 115.26 (85.95) | 4697 (20.89) | 9.20 (14.81) | 2282 | 1.98 | 0.489 (0.298) | 14.14 (12.09) | 184 (84) | 61 (16) | 29.04 (98.34) |
| **50% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 78.04 (58.20) | 3132 (13.93) | 9.34 (15.04) | 2305 | 1.52 | 0.569 (0.346) | 12.15 (10.39) | 181 (83) | 58 (14) | 29.04 (98.34) |
| **75% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 115.49 (86.12) | 4707 (20.94) | 9.20 (14.81) | 1842 | 1.98 | 0.439 (0.268) | 15.07 (12.89) | 185 (85) | 59 (15) | 29.04 (98.34) |
| **50% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 78.12 (58.25) | 3133 (13.93) | 9.36 (15.06) | 1865 | 1.52 | 0.519 (0.317) | 13.33 (11.41) | 181 (83) | 58 (14) | 29.04 (98.34) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** April-May, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.8301 **Fuel weight** 6.912 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 4.915 gal *(18.606 l)* **Drained from motor** 4.667 gal *(17.666 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Front axle lubricant** John Deere GL-5 Gear Lubricant 85W-140 **Total time engine was operated** 28.0 hours

**ENGINE: Make** John Deere Diesel **Type** six cyl. under vertical with turbocharger and intercooler **Serial No.** *RG6076A102454* **Crankshaft** length-wise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 4.75" *(115.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 66.6-72.8 lb/hr *(30.2-33.0 kg/hr)* **High idle** 2350-2400 rpm **Turbo boost** nominal 16-19 psi *(110-131 kPa)* as measured 16.5 psi *(114 kPa)*

**CHASSIS: Type** front wheel assist **Serial No.** *RW4755P001033* **Tread width** rear 64.6" *(1642 mm)* to 115.7" *(2938 mm)* front 66.6" *(1691 mm)* to 87.8" *(2230 mm)* **Wheel base** 117.1" *(2974 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 1.42 *(2.28)* second 2.03 *(3.27)* third 2.45 *(3.95)* fourth 3.08 *(4.96)* fifth 3.55 *(5.71)* sixth 4.05 *(6.49)* seventh 4.64 *(7.47)* eighth 5.35 *(8.58)* ninth 6.14 *(9.89)* tenth 6.97 *(11.22)* eleventh 8.03 *(12.93)* twelfth 8.99 *(14.46)* thirteenth 11.12 *(17.90)* fourteenth 15.56 *(25.04)* fifteenth 19.25 *(30.98)* reverse 1.96 *(3.16)*, 2.81 *(4.52)*, 4.27 *(6.87)*, 6.43 *(10.34)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 998 rpm at 2200 engine rpm **Unloaded tractor mass** 18165 lb *(8239 kg)*.

## DRAWBAR PERFORMANCE AT 2050 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp·hr (kg/kW·h) | Hp/hr gal (kW·h/l) | Temp. °F (°C) cool. eng med. | Air dry bulb | Barom. in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **5th Gear** | | | | | | | | | |
| 133.33 (99.42) | 16432 (73.09) | 3.04 (4.89) | 2192 | 14.78 | 0.492 (0.300) | 14.72 (12.77) | 184 (84) | 55 (13) | 29.13 (98.65) |
| **6th Gear** | | | | | | | | | |
| 143.68 (106.64) | 14852 (66.06) | 3.68 (5.92) | 2175 | 8.23 | 0.461 (0.281) | 15.66 (13.58) | 183 (84) | 60 (16) | 29.11 (98.58) |
| **7th Gear** | | | | | | | | | |
| 149.31 (111.34) | 13767 (61.24) | 4.07 (6.55) | 2051 | 6.59 | 0.444 (0.270) | 15.55 (13.48) | 184 (84) | 56 (13) | 29.10 (98.54) |
| **8th Gear** | | | | | | | | | |
| 147.50 (109.99) | 11613 (51.66) | 4.76 (7.67) | 2030 | 4.82 | 0.448 (0.273) | 15.41 (13.36) | 187 (86) | 57 (14) | 29.09 (98.51) |
| **9th Gear** | | | | | | | | | |
| 148.21 (110.52) | 10021 (44.58) | 5.55 (8.93) | 2032 | 4.04 | 0.447 (0.272) | 15.28 (13.25) | 187 (86) | 58 (14) | 29.08 (98.48) |
| **10th Gear** | | | | | | | | | |
| 150.02 (112.28) | 8929 (39.72) | 6.32 (10.18) | 2033 | 3.42 | 0.444 (0.270) | 15.38 (13.34) | 190 (88) | 58 (14) | 29.08 (98.48) |
| **11th Gear** | | | | | | | | | |
| 148.34 (110.63) | 7397 (32.91) | 7.33 (11.80) | 2033 | 2.88 | 0.446 (0.271) | 15.31 (13.28) | 189 (87) | 58 (14) | 29.07 (98.44) |
| **12th Gear** | | | | | | | | | |
| 151.39 (112.89) | 6681 (29.72) | 8.23 (13.24) | 2033 | 2.61 | 0.436 (0.265) | 15.65 (13.57) | 190 (88) | 60 (16) | 29.06 (98.41) |
| **13th Gear** | | | | | | | | | |
| 146.82 (109.48) | 5386 (23.96) | 10.22 (16.45) | 2033 | 2.16 | 0.448 (0.273) | 15.41 (13.36) | 189 (87) | 61 (16) | 29.05 (98.37) |

## DRAWBAR PERFORMANCE AT 2050 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp·hr (kg/kW·h) | Hp/hr gal (kW·h/l) | Temp. °F (°C) cool. eng med. | Air dry bulb | Barom. in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | |
| 151.75 (98.25) | 21481 (95.55) | 2.50 (4.20) | 2262 | 9.58 | 0.491 (0.299) | 14.07 (12.77) | 185 (85) | 55 (13) | 29.02 (98.27) |
| **4th Gear** | | | | | | | | | |
| 143.08 (106.70) | 18882 (83.99) | 2.84 (4.57) | 2164 | 6.81 | 0.467 (0.284) | 14.81 (12.92) | 187 (86) | 57 (14) | 29.00 (98.21) |
| **5th Gear** | | | | | | | | | |
| 145.44 (108.45) | 16667 (74.14) | 3.27 (5.27) | 2125 | 5.13 | 0.461 (0.280) | 15.00 (12.95) | 186 (86) | 60 (16) | 28.99 (98.17) |
| **6th Gear** | | | | | | | | | |
| 151.62 (113.06) | 15727 (69.96) | 3.62 (5.82) | 2051 | 4.26 | 0.457 (0.266) | 15.62 (13.62) | 187 (86) | 62 (17) | 28.95 (98.04) |
| **7th Gear** | | | | | | | | | |
| 149.61 (111.56) | 13576 (59.56) | 4.19 (6.75) | 2051 | 3.65 | 0.445 (0.269) | 15.62 (13.61) | 187 (86) | 63 (17) | 28.93 (97.97) |
| **8th Gear** | | | | | | | | | |
| 145.51 (108.50) | 11246 (50.02) | 4.85 (7.81) | 2050 | 2.94 | 0.454 (0.276) | 15.22 (13.06) | 186 (86) | 62 (17) | 28.97 (98.10) |
| **9th Gear** | | | | | | | | | |
| 146.62 (109.33) | 9776 (43.49) | 5.62 (9.05) | 2055 | 2.49 | 0.454 (0.276) | 15.24 (13.08) | 187 (86) | 61 (16) | 28.98 (98.14) |
| **10th Gear** | | | | | | | | | |
| 146.96 (109.59) | 8607 (38.29) | 6.40 (10.30) | 2053 | 2.22 | 0.451 (0.274) | 15.33 (13.62) | 186 (86) | 63 (17) | 28.91 (97.90) |
| **11th Gear** | | | | | | | | | |
| 145.44 (108.45) | 7379 (32.82) | 7.39 (11.90) | 2051 | 1.94 | 0.459 (0.279) | 15.06 (12.97) | 187 (86) | 63 (18) | 28.88 (97.80) |
| **12th Gear** | | | | | | | | | |
| 150.69 (112.37) | 6817 (30.32) | 8.29 (13.34) | 2053 | 1.76 | 0.439 (0.267) | 15.76 (13.56) | 186 (86) | 63 (18) | 28.87 (97.77) |
| **13th Gear** | | | | | | | | | |
| 145.63 (108.59) | 5505 (23.60) | 10.30 (16.57) | 2054 | 1.59 | 0.455 (0.277) | 15.18 (13.06) | 189 (87) | 65 (18) | 28.87 (97.77) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125° F (52° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 8870 lb *(4023 kg)* or 9710 lb *(4404 kg)* with lift assist cylinder. The pull in 3rd gear ballasted tractors was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1621**, Summary 059, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOEFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank speed rpm | Slip % | Fuel Consumption lb/hp-hr (g/kW-h) | Hp-hr/gal (kW-h/l) | Temp. °F (°C) coolant | Air inlet | Bar. in. (mm) Hg |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 3rd Gear | | | | | |
| 128.71 (95.99) | 21192 (94.3) | 2.28 (3.67) | 2701 | 10.23 | 0.494 (0.301) | 13.85 (2.31) | 180 (82) | 55 (13) | 29.03 (737.4) |
| 144.03 (107.40) | 18630 (82.9) | 2.91 (4.68) | 2702 | 9.23 | 0.467 (0.284) | 14.79 (2.46) | 180 (82) | 55 (13) | 29.08 (738.7) |
| | | | | 5th Gear | | | | | |
| 143.92 (107.32) | 13981 (62.2) | 3.80 (6.12) | 2700 | 4.70 | 0.468 (0.285) | 14.77 (2.46) | 180 (82) | 58 (14) | 28.93 (734.8) |
| | | | | 6th Gear | | | | | |
| 143.72 (107.17) | 12393 (55.1) | 4.00 (6.44) | 2702 | 3.91 | 0.448 (0.273) | 15.41 (2.57) | 180 (82) | 62 (16) | 28.86 (733.0) |
| | | | | 7th Gear | | | | | |
| 143.68 (107.14) | 12263 (54.5) | 4.11 (6.62) | 2700 | 3.59 | 0.454 (0.276) | 15.22 (2.54) | 180 (82) | 62 (17) | 28.94 (735.0) |
| | | | | 9th Gear | | | | | |
| 143.79 (107.23) | 10330 (45.9) | 5.22 (8.40) | 2700 | 2.58 | 0.466 (0.284) | 14.84 (2.47) | 180 (82) | 62 (17) | 28.97 (735.8) |
| | | | | 9th Gear | | | | | |
| 143.75 (107.20) | 9917 (44.1) | 5.43 (8.74) | 2703 | 2.31 | 0.469 (0.285) | 14.75 (2.45) | 180 (82) | 58 (14) | 28.95 (735.3) |
| | | | | 10th Gear | | | | | |
| 143.85 (107.27) | 7861 (34.9) | 6.86 (11.04) | 2700 | 1.44 | 0.466 (0.283) | 14.83 (2.47) | 180 (82) | 63 (17) | 28.81 (731.8) |
| | | | | 11th Gear | | | | | |
| 141.98 (105.87) | 6700 (29.8) | 7.95 (12.79) | 2701 | 1.26 | 0.470 (0.286) | 14.71 (2.45) | 185 (85) | 63 (17) | 28.89 (733.8) |
| | | | | 12th Gear | | | | | |
| 143.55 (107.04) | 6136 (27.3) | 8.90 (14.32) | 2699 | 1.36 | 0.463 (0.282) | 14.95 (2.49) | 180 (82) | 63 (17) | 28.89 (733.8) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—5th Gear | 76.5 |
| Maximum sound level | 77.0 |
| Transport speed—no load—13th Gear | 77.0 |
| Bystander in 13th Gear | 83.5 |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2190 | 1978 | 1762 | 1557 | 1321 | 1097 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 7861 (34.97) | 8972 (39.91) | 10056 (44.73) | 10775 (47.93) | 10785 (47.97) | 9948 (44.25) |
| Increase in Pull % | 0 | 14 | 28 | 37 | 37 | 27 |
| Power—Hp (kW) | 145.85 (107.27) | 147.48 (109.97) | 146.73 (109.42) | 136.79 (102.00) | 117.81 (87.85) | 90.38 (67.39) |
| Speed—Mph (km/h) | 6.86 (11.04) | 6.16 (9.92) | 5.47 (8.81) | 4.76 (7.66) | 4.10 (6.59) | 3.41 (5.48) |
| Slip % | 1.94 | 2.22 | 2.58 | 2.76 | 2.76 | 2.58 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | | | | | | |
|---|---|---|---|---|---|---|
| Observed Maximum Pressure psi (Bar) | 2530 (174) | | | | | |
| Location | remote outlet | | | | | |
| Hydraulic oil temperature °F (°C) | 137 (58) | | | | | |
| Location | transmission sump | | | | | |
| Category | III | | | | | |
| Quick attach | Yes | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) | |
| Lift force on frame lb (kN) | 8700 (38.7) | 9228 (41.0) | 9432 (42.0) | 8944 (39.8) | 8285 (36.9) | |
| with 1.44 mm lift assist cylinder | | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) | |
| Lift force on frame lb (kN) | 9860 (43.9) | 10570 (47.0) | 10934 (48.7) | 10224 (45.5) | 9411 (41.9) | |
| with 1.55 mm lift assist cylinder | | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) | |
| Lift force on frame lb (kN) | 10518 (46.8) | 11434 (50.9) | 11576 (51.5) | 10737 (47.8) | 10041 (44.7) | |

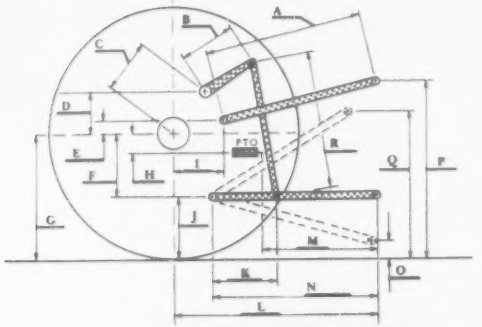
| TIRES AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | No., size, ply & psi (kPa) | Four 23.9R42, ** 12-ply | Four 18.4R42, ** 10-ply (110) |
| Ballast | Dual—total | 3600 lb | None |
| | 4 cwt. front—total | 1600 lb | None |
| Front Tires | No., size, ply & psi (kPa) | Two 16.9R30, *** 24-ply | Two 16.9R30, *** 24-ply |
| Ballast | Two Equip.—total | 250 lb | None |
| | 4 cwt. front—total | 500 lb | None |
| Height of Drawbar | | 20.5 in. | 16 in. |
| Static Weight | Rear | 14,240 lb | 11,040 lb |
| | Front | 9040 lb | 6075 lb |
| | Total | 23,280 lb | 17,115 lb |

| | | |
|---|---|---|
| | 3621 lbs | 25.9 kN |
| | *4614 lbs | 29.4 kN |
| | **7057 lbs | 31.4 kN |
| i) Opening pressure of relief valve | NA | |
| Sustained pressure with pump stalled | 2530 psi | 174 Bar |
| ii) Pump delivers rate at minimum pressure | 31.6 GPM | 119.6 l/min |
| iii) Pump delivers rate at maximum | | |
| Stall axle power | 90.6 GPM | 115.8 l/min |
| | 1530 psi | 121 Bar |
| Delivers pressure | 31.2 Hp | 23.3 kW |
| Power | | |

*with 44 mm lift assist cylinder
**with 55 mm lift assist cylinder

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY III
Quick Attach Yes
Maximum Force Exerted Through Whole Range




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 28.1 | 714 |
| B | 18.4 | 468 |
| C | 12.9 | 327 |
| D | 12.9 | 327 |
| E | 6.8 | 172 |
| F | 13.0 | 330 |
| G | 36.1 | 918 |
| H | 7.0 | 177 |
| I | 15.1 | 384 |
| J | 23.1 | 588 |
| K | 28.2 | 716 |
| L | 44.3 | 1124 |
| L* | 49.3 | 1251 |
| M | 22.3 | 565 |
| N | 38.1 | 968 |
| O | 10.1 | 257 |
| P | 45.1 | 1146 |
| Q | 42.3 | 1080 |
| R | 37.3 | 946 |

L* to end of Quick attach

**John Deere 4755 Powershift Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1622—SUMMARY 060
# JOHN DEERE 4955 POWERSHIFT DIESEL
# 15 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Fuel consumption lb/hp-hr g/kW-h | Hp hr per gal kW-h/l | Mean Atmospheric Conditions |
|---|---|---|---|---|---|

### MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—(PTO speed—990 rpm)**

| | | | | | |
|---|---|---|---|---|---|
| 202.73 | 2200 | 11.02 | 0.376 | 18.39 | |
| [illegible] | | [illegible] | [illegible] | [illegible] | |

**Maximum Power (2 Hours)**

| | | | | | |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | Air temperature |
| [illegible] | | [illegible] | [illegible] | [illegible] | |

### VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|---|---|---|---|---|
| 202.73 | 2200 | 11.02 | 0.376 | 18.39 | |
| [illegible] | | [illegible] | [illegible] | [illegible] | 74°F (23°C) |
| 157.23 | 2250 | 10.05 | 0.391 | 17.68 | Relative humidity |
| [illegible] | | [illegible] | [illegible] | [illegible] | |
| 134.91 | 2247 | 7.99 | 0.406 | 16.84 | 46% |
| [illegible] | | [illegible] | [illegible] | [illegible] | |
| 91.46 | 2550 | 6.12 | 0.462 | 14.51 | Barometer |
| [illegible] | | [illegible] | [illegible] | [illegible] | |
| 46.05 | 2556 | 4.50 | 0.643 | 10.72 | 29.05" Hg (97.4 kPa) |
| [illegible] | | [illegible] | [illegible] | [illegible] | |
| 0.77 | 2560 | 2.59 | 21.917 | 0.92 | |
| [illegible] | | [illegible] | [illegible] | [illegible] | |

Maximum Torque 670 lb-ft (908 N-m) at 1500 rpm
Maximum Torque Rise 36.5%
Torque Rise at 1000 engine rpm 31%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp-hr g/kW-h | Hp hr per gal kW-h/l | Temp °F (°C) cool eng cond | Air dry bulb | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—10th Gear** | | | | | | | | | |
| 176.48 | 7486 | 8.84 | 2197 | 2.66 | 0.430 | 15.93 | 186 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **75% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 157.77 | 5614 | 9.20 | 2277 | 2.30 | 0.429 | 14.65 | 184 | 64 | 28.75 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **50% of Pull at Maximum Power—12th Gear** | | | | | | | | | |
| 95.09 | 5748 | 9.40 | 2312 | 1.65 | 0.394 | 12.95 | 182 | 65 | 28.74 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **75% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 157.85 | 5620 | 9.20 | 1859 | 2.29 | 0.431 | 13.33 | 187 | 64 | 28.75 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **50% of Pull at Reduced Engine Speed—13th Gear** | | | | | | | | | |
| 95.79 | 5742 | 9.40 | 1868 | 1.56 | 0.397 | 13.90 | 180 | 68 | 28.74 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** April-June, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.8501 **Fuel weight** 6.912 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 4.828 gal *(18.272 l)* **Drained from motor** 4.483 gal *(16.969 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Front axle lubricant** John Deere GL-5 Gear Lubricant 85W-140 **Total time engine was operated** 87.5 hours

**ENGINE: Make** John Deere Diesel **Type** six cyl under vertical with turbocharger and intercooler **Serial No.** *RG6076A105190* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 4.75" *(115.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 75.5-82.2 lb/hr *(34.2-37.3 kg/hr)* **High idle** 2350-2400 rpm **Turbo boost** nominal 16-19 psi *(110-131 kPa)* as measured 16.7 psi *(115 kPa)*

**CHASSIS: Type** front wheel assist **Serial No.** *RW4955P001024* **Tread width** rear 64.6" *(1642 mm)* to 115.7" *(2938 mm)* front 66.6" *(1691 mm)* to 87.8" *(2230 mm)* **Wheel base** 117.1" *(2974 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 1.42 *(2.29)*, second 2.03 *(3.27)*, third 2.46 *(3.96)*, fourth 3.09 *(4.97)*, fifth 3.56 *(5.72)*, sixth 4.04 *(6.50)*, seventh 4.65 *(7.49)*, eighth 5.34 *(8.60)*, ninth 6.16 *(9.91)*, tenth 6.99 *(11.24)*, eleventh 8.05 *(12.95)*, twelfth 9.00 *(14.49)*, thirteenth 11.14 *(17.93)*, fourteenth 15.58 *(25.08)*, fifteenth 19.29 *(31.04)* reverse 1.97 *(3.17)*, 2.81 *(4.53)*, 4.27 *(6.88)*, 6.44 *(10.36)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 998 rpm at 2200 engine rpm **Unloden tractor mass** 18570 lb *(8332 kg)*

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr g/kW-h | Hp hr per gal kW-h/l | Temp °F (°C) cool eng cond | Air dry bulb | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **9th Gear** | | | | | | | | | |
| 158.13 | 17921 | 5.48 | 2201 | 14.37 | 0.430 | 14.59 | 186 | 52 | 28.78 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **7th Gear** | | | | | | | | | |
| 171.46 | 13692 | 4.29 | 2165 | 7.80 | 0.434 | 15.02 | 187 | 57 | 28.78 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **8th Gear** | | | | | | | | | |
| 172.87 | 14508 | 4.50 | 1952 | 6.06 | 0.440 | 15.21 | 186 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **9th Gear** | | | | | | | | | |
| 174.49 | 12403 | 5.25 | 1950 | 4.87 | 0.434 | 15.04 | 188 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **10th Gear** | | | | | | | | | |
| 177.01 | 11043 | 6.01 | 1952 | 4.05 | 0.439 | 16.06 | 187 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **11th Gear** | | | | | | | | | |
| 176.21 | 9300 | 6.86 | 1949 | 3.38 | 0.442 | 15.95 | 188 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **12th Gear** | | | | | | | | | |
| 182.82 | 8760 | 7.85 | 1954 | 3.02 | 0.411 | 16.80 | 188 | 50 | 28.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **13th Gear** | | | | | | | | | |
| 177.61 | 6858 | 9.71 | 1947 | 2.48 | 0.427 | 16.17 | 188 | 51 | 28.78 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr g/kW-h | Hp hr per gal kW-h/l | Temp °F (°C) cool eng cond | Air dry bulb | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **3rd Gear** | | | | | | | | | |
| 145.69 | 25715 | 2.50 | 2264 | 9.68 | 0.484 | 14.27 | 185 | 50 | 28.85 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **4th Gear** | | | | | | | | | |
| 167.70 | 22457 | 2.80 | 2146 | 7.99 | 0.458 | 15.08 | 188 | 50 | 28.84 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **5th Gear** | | | | | | | | | |
| 171.50 | 20351 | 3.16 | 2058 | 5.62 | 0.449 | 15.41 | 187 | 55 | 28.86 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **6th Gear** | | | | | | | | | |
| 174.65 | 18589 | 3.52 | 2001 | 4.68 | 0.454 | 15.94 | 187 | 64 | 28.66 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **7th Gear** | | | | | | | | | |
| 176.56 | 16602 | 3.99 | 1952 | 4.07 | 0.428 | 16.14 | 189 | 65 | 28.67 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **8th Gear** | | | | | | | | | |
| 172.76 | 14000 | 4.65 | 1953 | 5.10 | 0.438 | 15.77 | 188 | 60 | 28.66 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **9th Gear** | | | | | | | | | |
| 175.90 | 12182 | 5.35 | 1951 | 2.74 | 0.436 | 15.87 | 189 | 52 | 29.00 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **10th Gear** | | | | | | | | | |
| 174.85 | 10785 | 6.08 | 1947 | 2.38 | 0.435 | 15.95 | 188 | 52 | 29.01 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **11th Gear** | | | | | | | | | |
| 172.85 | 9219 | 7.05 | 1949 | 2.29 | 0.438 | 15.78 | 189 | 55 | 29.02 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **12th Gear** | | | | | | | | | |
| 179.11 | 8509 | 7.89 | 1953 | 1.93 | 0.424 | 16.52 | 188 | 54 | 29.04 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| **13th Gear** | | | | | | | | | |
| 175.13 | 6622 | 9.80 | 1956 | 1.74 | 0.437 | 15.85 | 188 | 57 | 29.06 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 141°F (61°C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 9710 lb *(4404 kg)*. The pull in 3rd gear (ballasted tractor) was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1622**, Summary 060, December 22, 1989.

LOUIS J. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power — Drawbar (Hp / kW) | Speed (mph / km/h) | Slip % | Fuel Consumption (lb/hp-hr / kg/kW-h) | Engine rpm | Ratio |
|---|---|---|---|---|---|
| **4th Gear** | | | | | |
| 147.00 / 109.62 | 2.92 / 4.70 | 2.92 | 0.479 / 0.291 | 1930 | 29.93 |
| **5th Gear** | | | | | |
| 167.20 / 124.72 | 3.46 / 5.57 | 2.96 | 0.466 / 0.283 | 1930 | 29.93 |
| **6th Gear** | | | | | |
| 170.67 / 127.30 | 4.02 / 6.47 | 2.97 | 0.460 / 0.280 | 1930 | 29.93 |
| **7th Gear** | | | | | |
| 173.11 / 129.12 | 4.63 / 7.45 | 3.00 | 0.460 / 0.280 | 1930 | 29.93 |
| **8th Gear** | | | | | |
| 171.80 / 128.15 | 5.23 / 8.42 | 3.07 | 0.460 / 0.280 | 1930 | 29.93 |
| **9th Gear** | | | | | |
| 167.20 / 124.72 | 5.80 / 9.33 | 3.14 | 0.467 / 0.284 | 1930 | 29.93 |
| **10th Gear** | | | | | |
| 160.80 / 119.93 | 6.32 / 10.17 | 3.29 | 0.483 / 0.294 | 1930 | 29.93 |
| **11th Gear** | | | | | |
| 150.40 / 112.17 | 6.80 / 10.94 | 3.52 | 0.504 / 0.307 | 1930 | 29.93 |
| **12th Gear** | | | | | |
| 136.80 / 102.02 | 7.18 / 11.56 | 3.91 | 0.539 / 0.328 | 1930 | 29.93 |
| **13th Gear** | | | | | |
| 120.00 / 89.49 | 7.53 / 12.12 | 4.51 | 0.597 / 0.363 | 1930 | 29.93 |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear (closest to 4.7 mph / 7.6 km/h) — 5th Gear | 76 |
| Maximum sound level | 77.1 |
| Transport speed — on road — 12th Gear | 79.1 |
| Bystander at 15th Gear | 80.8 |

## LUGGING ABILITY IN 10th GEAR

| Crankshaft Speed rpm | 2201 | 1981 | 1760 | 1539 | 1323 | 1104 |
|---|---|---|---|---|---|---|
| Pull—lbs | 9151 | 10579 | 11756 | 12751 | 12792 | 10434 |
| kN | 40.61 | 47.06 | 52.28 | 56.63 | 56.90 | 46.41 |
| Increase in Pull % | 0 | 16 | 29 | 39 | 40 | 14 |
| Power—Hp | 167.80 | 174.63 | 171.90 | 162.63 | 140.29 | 95.90 |
| kW | 125.13 | 130.22 | 128.23 | 121.29 | 104.59 | 71.51 |
| Speed—Mph | 6.89 | 6.19 | 5.49 | 4.79 | 4.11 | 3.43 |
| km/h | 11.09 | 9.96 | 8.83 | 7.70 | 6.62 | 5.53 |
| Slip % | 2.92 | 2.29 | 2.47 | 2.85 | 2.85 | 2.47 |

| TIRES AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | Two size 20.8R42 *** (2.85 | Two 20.8R42 *** (2.85 | |
| Ballast | Dual (rear) | 1800 lb 817 kg | None |
| | Cast Iron (rear) | 2000 lb 907 kg | None |
| Front Tires | Two size 16.9R30 *** 24 (1.65 | Two 16.9R30 *** 24 (1.65 | |
| Ballast | Two Equip. (rear) | 240 lb 112 kg | None |
| | Cast Iron (rear) | 2100 lb 953 kg | None |
| Height of Drawbar | | 20 in 510 mm | 19.0 in 485 mm |
| Static Weight | Rear | 15550 lb 6956 kg | 11850 lb 5366 kg |
| | Front | 9550 lb 4232 kg | 6540 lb 2966 kg |
| | Total | 25100 lb 11188 kg | 18570 lb 8332 kg |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| Observed Maximum Pressure psi / Bar | 2530 / 176 |
|---|---|
| Location | remote outlet |
| Hydraulic oil temperature °F | 124 °C |
| Location | transmission sump |
| Category | III |
| Quick attach | Yes |

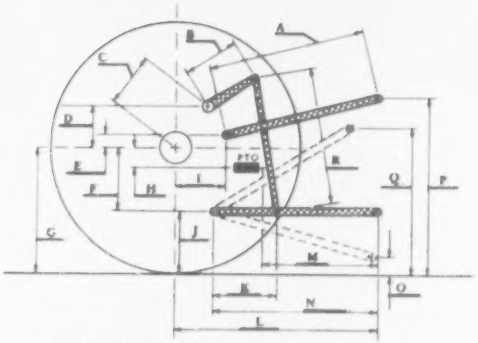
| Hitch point distance | | | | | |
|---|---|---|---|---|---|
| at ground level in. / mm | 9.0 / 229 | 16.0 / 406 | 25.0 / 635 | 34.0 / 864 | 40.0 / 1016 |
| Lift force on frame lb. | 9900 | 10570 | 10854 | 10224 | 9411 |
| kN | 44.0 | 47.0 | 48.3 | 45.5 | 41.9 |
| **with 1.55 mm lift assist cylinder** | | | | | |
| Hitch point distance | | | | | |
| at ground level in. / mm | 9.0 / 229 | 16.0 / 406 | 25.0 / 635 | 34.0 / 864 | 40.0 / 1016 |
| Lift force on frame lb. | 10958 | 11454 | 11576 | 10747 | 10041 |
| kN | 48.8 | 50.9 | 51.5 | 47.8 | 44.7 |
| **with 2.44 mm lift assist cylinders** | | | | | |
| Hitch point distance | | | | | |
| at ground level in. / mm | 9.0 / 229 | 16.0 / 406 | 25.0 / 635 | 34.0 / 864 | 40.0 / 1016 |
| Lift force on frame lb. | 11973 | 11972 | 12016 | 11617 | 10951 |
| kN | 53.3 | 53.3 | 53.5 | 51.7 | 48.7 |
| **with 2.55 mm lift assist cylinders** | | | | | |
| Hitch point distance | | | | | |
| at ground level in. / mm | 9.1 / 231 | 16.0 / 406 | 25.0 / 635 | 34.0 / 864 | 40.0 / 1016 |
| Lift force on frame lb. | 12534 | 13426 | 13720 | 12729 | 11751 |
| kN | 55.8 | 59.7 | 61.0 | 56.6 | 52.3 |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY III
Quick Attach Yes
Maximum Force Exerted Through Whole Range

| | | |
|---|---|---|
| | 9614 lbs | 29.4 kN |
| | *7057 lbs | 31.4 kN |
| | **7466 lbs | 33.2 kN |
| | ***8274 lbs | 36.8 kN |
| (1) Opening pressure of relief valve | N.S. | |
| Sustained pressure with pump stalled | 2550 psi | 176 Bar |
| (2) Pump delivers (see a) minimum pressure | 30.6 GPM | 115.8 l/min |
| (3) Pump delivers (see a) maximum | | |
| Hydraulic power | 29.6 GPM | 112.0 l/min |
| Delivers pressure | 1740 psi | 121 Bar |
| Power | 30.2 Hp | 22.5 kW |

*with 1.55 mm lift assist cylinder
**with 2.44 mm lift assist cylinders
***with 2.55 mm lift assist cylinders




HITCH DIMENSIONS AS TESTED—NO LOAD

John Deere 4955 Powershift Diesel

| | inch | mm |
|---|---|---|
| A | 28.1 | 714 |
| B | 18.4 | 468 |
| C | 12.9 | 327 |
| D | 12.9 | 327 |
| E | 6.8 | 172 |
| F | 13.0 | 330 |
| G | 36.1 | 918 |
| H | 7.0 | 177 |
| I | 15.1 | 384 |
| J | 23.1 | 588 |
| K | 28.2 | 716 |
| L | 44.5 | 1124 |
| M | 49.5 | 1251 |
| N | 22.5 | 565 |
| O | 38.1 | 968 |
| P | 10.1 | 257 |
| Q | 45.1 | 1146 |
| R | 42.5 | 1080 |
| E = to end of Quick Attach | 57.5 | 946 |


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1623—SUMMARY 061
# JOHN DEERE 8560 POWRSYNC DIESEL
# 24 SPEED ALSO 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp | Engine shaft speed rpm | Torque ft-lb (N·m) | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Main transmission oil temp °F (°C) |
|---|---|---|---|---|---|
| 540 | 2100 | 1350 (1830) | 0.400 (243) | 5.00 (1.32) | 180 (82) |
| 1000 | 1900 | 2760 (3740) | 0.395 (240) | 5.06 (1.34) | 180 (82) |

## MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—PTO speed—1100 rpm**

| Power Hp (kW) | Engine shaft speed rpm | Torque ft-lb (N·m) | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Main transmission oil temp °F (°C) |
|---|---|---|---|---|---|
| 540 (403) | 2100 | 1350 (1830) | 0.400 (243) | 5.00 (1.32) | 180 (82) |
| 1000 (746) | 1900 | 2760 (3740) | 0.395 (240) | 5.06 (1.34) | 180 (82) |

**Maximum Power (2 Hours)**

| Power Hp (kW) | Engine shaft speed rpm | Torque ft-lb (N·m) | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Main transmission oil temp °F (°C) |
|---|---|---|---|---|---|
| 2301 (1716) | 1900 | 6360 (8620) | 0.364 (221) | 5.49 (1.45) | 180 (82) |
| 2176 (1623) | 1800 | 6350 (8610) | 0.362 (220) | 5.52 (1.46) | 180 (82) |

**Standard Power Take-off Speed (1000 rpm)**

| Power Hp (kW) | Engine shaft speed rpm | Torque ft-lb (N·m) | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Main transmission oil temp °F (°C) |
|---|---|---|---|---|---|
| 2301 (1716) | 1900 | 6360 (8620) | 0.364 (221) | 5.49 (1.45) | 180 (82) |
| 2176 (1623) | 1800 | 6350 (8610) | 0.362 (220) | 5.52 (1.46) | 180 (82) |

## VARYING POWER AND FUEL CONSUMPTION

| Power Hp (kW) | Engine shaft speed rpm | Torque ft-lb (N·m) | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Main transmission oil temp °F (°C) |
|---|---|---|---|---|---|
| 2052 (1530) | 2100 | 5126 (6950) | 0.377 (229) | 5.30 (1.40) | 180 (82) |
| 1776 (1324) | 1800 | 5180 (7020) | 0.420 (255) | 5.00 (1.32) | 180 (82) |
| 1301 (970) | 1500 | 4560 (6180) | 0.478 (291) | 4.40 (1.16) | 180 (82) |
| 992 (740) | 1200 | 4345 (5890) | 0.580 (353) | 3.63 (0.96) | 180 (82) |
| 486 (362) | 600 | 4250 (5760) | 0.729 (443) | 2.89 (0.76) | 180 (82) |
| 0 (0) | 0 | 0 (0) | 24.90 (15.15) | 0.08 (0.02) | 180 (82) |

Maximum Torque 60° Rise 1947 ft-lb (2640 N·m) at 1350 rpm
Maximum Torque Rise 35.3%
Torque Rise at 1900 engine rpm 30%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Temp °F (°C) cool ing med. | air duct bulb | Barom etric Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 180.74 (134.78) | 11162 (49.65) | 6.07 (9.77) | 2104 | 1.39 | 0.432 (0.275) | 13.25 (3.50) | 182 (83) | 69 (21) | 29.09 (98.51) |
| **75% of Pull at Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 142.24 (106.07) | 8571 (38.24) | 6.57 (10.57) | 2197 | 1.14 | 0.490 (0.298) | 14.12 (3.73) | 182 (83) | 71 (22) | 29.08 (98.48) |
| **50% of Pull at Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 96.63 (72.06) | 3560 (24.82) | 6.49 (10.45) | 2251 | 0.76 | 0.504 (0.310) | 12.25 (3.24) | 181 (83) | 73 (23) | 29.07 (98.44) |
| **75% of Pull at Reduced Engine Speed—15th (B5) Gear** | | | | | | | | | |
| 142.57 (106.32) | 8575 (38.25) | 6.58 (10.47) | 1774 | 1.14 | 0.449 (0.276) | 13.59 (3.59) | 182 (83) | 73 (23) | 29.08 (98.48) |
| **50% of Pull at Reduced Engine Speed—15th (B5) Gear** | | | | | | | | | |
| 96.61 (72.04) | 3561 (24.82) | 6.49 (10.45) | 1798 | 0.70 | 0.500 (0.308) | 13.82 (3.72) | 181 (83) | 73 (23) | 29.06 (98.41) |

## LUGGING ABILITY IN 12th (C3) GEAR

| Crankshaft Speed rpm | 2104 | 1893 | 1685 | 1474 | 1263 | 1054 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 11162 (49.65) | 13090 (58.23) | 14623 (65.06) | 15388 (68.45) | 15502 (68.96) | 14989 (66.67) |
| Increase in Pull % | 0 | 17 | 31 | 38 | 39 | 34 |
| Power—Hp (kW) | 180.74 (134.78) | 190.05 (141.72) | 188.41 (140.49) | 172.94 (128.96) | 149.30 (111.34) | 120.47 (89.84) |
| Speed—Mph (km/h) | 6.07 (9.77) | 5.44 (8.76) | 4.85 (7.77) | 4.21 (6.78) | 3.61 (5.81) | 3.01 (4.85) |
| Slip % | 1.39 | 2.02 | 2.29 | 2.28 | 2.28 | 2.28 |

**Location of Test:** Center for Agricultural Engineering, Lincoln, Nebraska 68583-0952, U.S.A.

**Dates of Test:** May–July 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel, Cetane No. 51.1. **Specific gravity** converted to 60°/60°F (15.5°/15.5°C) 0.8501. **Fuel weight** 6.912 lbs/gal (0.828 kg/L). **Oil SAE** 15W-40. **API service classification** CI-4/SD. **To motor** 5.700 gal (21.6 L). **Drained from motor** 5.414 gal (20.494 L). **Transmission, hydraulic and final drive lubricant** John Deere Hy-Gard fluid. **Total time engine was operated** 25 hours.

**ENGINE: Make** John Deere Diesel. **Type** six-cylinder vertical with turbocharger and air-to-air aftercooler. **Serial No.** *RG6060H410022** **Crankshaft** lengthwise. **Rated engine speed** 2100. **Bore and stroke** (as specified) 4.56" × 4.75" (115.8 mm × 120.7 mm). **Compression ratio** 16.0 to 1. **Displacement** 466 cu in (7634 ml). **Starting system** 12 volt. **Lubrication** pressure. **Air cleaner** two paper elements and aspirator. **Oil filter** one full flow cartridge. **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil. **Fuel filter** one paper cartridge. **Muffler** vertical. **Cooling medium temperature** control 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 80.0-87.5 lb/hr (36.3-39.6 kg/hr). **High idle** 2225-2325 rpm. **Turbo boost** nominal 15-18 psi (103-124 kPa) as measured 16.0 psi (110 kPa).

**CHASSIS: Type** four wheel drive with duals. **Serial No.** *RW8560H001056* **Tread width** rear 73.7" (1871 mm) to 152.0" (3352 mm) front 73.7" (1871 mm) to 152.0" (3352 mm). **Wheel base** 133.9" (3400 mm). **Hydraulic control system** direct engine drive. **Transmission** selective gear fixed ratio with partial 12 range operator controlled powershift. **Nominal travel speeds mph (km/h)** first 2.06 (3.31), second 2.47 (3.98), third 2.65 (4.27), fourth 3.18 (5.12), fifth 3.63 (5.84), sixth 4.35 (7.00), seventh 4.39 (7.06), eighth 4.84 (7.79), ninth 5.26 (8.47), tenth 5.65 (9.10), eleventh 5.80 (9.34), twelfth 6.23 (10.03), thirteenth 6.78 (10.91), fourteenth 7.47 (12.02), fifteenth 7.75 (12.45), sixteenth 8.55 (13.72), seventeenth 9.27 (14.93), eighteenth 10.22 (16.45), nineteenth 10.31 (16.60), twentieth 12.36 (19.90), twenty-first 15.28 (21.37), twenty-second 15.92 (25.63), twenty-third 18.18 (29.25), twenty-fourth 21.78 (35.06), reverse 2.47 (3.98), 2.96 (4.77), 3.26 (8.47), 5.80 (9.34), 6.31 (10.16), 6.96 (11.20). **Clutch** multiple wet disc hydraulically power actuated by foot pedal. **Brakes** multiple wet disc hydraulically power actuated by foot pedal. **Steering** hydrostatic and articulated. **Power take-off** 1000 rpm at 1895 engine rpm. **Unladen tractor mass** 32075 lb (14549 kg).

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel consumption lb/hp-hr (g/kW·h) | Hp-hr per gal (kW·h/L) | Temp °F (°C) cool ing med. | air duct bulb | Barom etric Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **1st (A1) Gear** | | | | | | | | | |
| 164.02 (122.31) | 31879 (141.80) | 1.93 (3.11) | 2157 | 7.84 | 0.486 (0.295) | 14.25 (3.76) | 182 (83) | 59 (15) | 29.09 (98.51) |
| **2nd (A2) Gear** | | | | | | | | | |
| 176.34 (131.45) | 30280 (134.69) | 2.04 (3.28) | 2022 | 6.99 | 0.465 (0.283) | 14.87 (3.93) | 182 (83) | 64 (18) | 29.10 (98.54) |
| **3rd (A3) Gear** | | | | | | | | | |
| 181.53 (135.33) | 28833 (128.26) | 2.16 (3.47) | 2007 | 5.96 | 0.449 (0.273) | 15.30 (4.04) | 182 (83) | 68 (20) | 29.11 (98.58) |
| **4th (A4) Gear** | | | | | | | | | |
| 183.13 (136.54) | 25134 (111.83) | 2.34 (3.76) | 1902 | 5.00 | 0.440 (0.268) | 15.71 (4.15) | 183 (84) | 70 (21) | 29.12 (98.61) |
| **5th (A5) Gear** | | | | | | | | | |
| 183.92 (137.13) | 22805 (101.46) | 2.53 (4.07) | 1800 | 4.31 | 0.439 (0.267) | 15.74 (4.16) | 182 (83) | 69 (21) | 29.12 (98.61) |
| **6th (A6) Gear** | | | | | | | | | |
| 182.23 (135.87) | 19911 (88.58) | 2.70 (4.34) | 1904 | 2.93 | 0.444 (0.270) | 15.57 (4.11) | 183 (84) | 70 (21) | 29.12 (98.61) |
| **7th (B1) Gear** | | | | | | | | | |
| 185.16 (138.07) | 18106 (80.54) | 3.62 (5.83) | 1901 | 2.72 | 0.437 (0.266) | 15.80 (4.17) | 183 (84) | 71 (22) | 29.08 (98.48) |
| **8th (C1) Gear** | | | | | | | | | |
| 186.64 (139.18) | 16561 (73.67) | 4.25 (6.84) | 1903 | 2.46 | 0.434 (0.264) | 15.93 (4.21) | 183 (84) | 70 (21) | 29.08 (98.48) |
| **9th (B2) Gear** | | | | | | | | | |
| 187.40 (139.75) | 15243 (67.81) | 4.61 (7.42) | 1903 | 2.25 | 0.431 (0.262) | 16.05 (4.24) | 184 (84) | 71 (22) | 29.10 (98.54) |
| **10th (B3) Gear** | | | | | | | | | |
| 188.70 (140.72) | 14286 (63.55) | 4.95 (7.97) | 1904 | 1.94 | 0.428 (0.260) | 16.14 (4.26) | 183 (84) | 69 (21) | 29.10 (98.54) |
| **11th (C2) Gear** | | | | | | | | | |
| 186.19 (138.86) | 13720 (61.03) | 5.09 (8.19) | 1903 | 1.85 | 0.434 (0.264) | 15.91 (4.20) | 183 (84) | 69 (21) | 29.10 (98.54) |
| **12th (C3) Gear** | | | | | | | | | |
| 189.88 (141.60) | 13006 (57.85) | 5.48 (8.81) | 1904 | 1.76 | 0.428 (0.259) | 16.21 (4.28) | 183 (84) | 69 (21) | 29.10 (98.54) |
| **13th (B4) Gear** | | | | | | | | | |
| 185.80 (138.56) | 11527 (51.27) | 5.98 (9.62) | 1907 | 1.67 | 0.438 (0.266) | 15.78 (4.17) | 183 (84) | 70 (21) | 29.09 (98.51) |
| **14th (C4) Gear** | | | | | | | | | |
| 187.01 (139.45) | 10636 (47.31) | 6.39 (10.61) | 1904 | 1.67 | 0.432 (0.261) | 16.00 (4.23) | 185 (85) | 68 (20) | 29.15 (98.65) |
| **15th (B5) Gear** | | | | | | | | | |
| 187.44 (139.77) | 10299 (45.81) | 6.85 (10.98) | 1901 | 1.50 | 0.431 (0.262) | 16.05 (4.24) | 184 (84) | 68 (20) | 29.15 (98.65) |
| **16th (C5) Gear** | | | | | | | | | |
| 185.17 (138.08) | 9205 (40.93) | 7.55 (12.14) | 1905 | 1.52 | 0.437 (0.266) | 15.85 (4.12) | 184 (84) | 69 (21) | 29.15 (98.65) |
| **17th (B6) Gear** | | | | | | | | | |
| 180.51 (134.61) | 8256 (36.66) | 8.22 (13.22) | 1903 | 1.14 | 0.447 (0.272) | 15.46 (4.08) | 184 (84) | 72 (22) | 29.15 (98.65) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 149°F (65°C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The pull in 1st (A1) gear was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1623**, Summary 061, December 22, 1989.

LOUIS LEVITICUS
Engineer in Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2100 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed (rpm) | Slip % | Fuel Consumption lb/hp-hr (g/kW-h) | Hp-hr/gal (kW-h/L) | Temp °F (°C) eng. | trans. | Air cleaner restr. in/Hg (kPa) | Barom. in/Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1st (A1) Gear | | | | | |
| 162.63 (121.29) | 32100 (142.8) | 1.90 (3.05) | 2152 | 9.06 | 0.492 (299.0) | 14.94 (2.95) | 182 (83) | 62 (17) | | 29.09 (98.51) |
| | | | | | 2nd (A2) Gear | | | | | |
| 174.41 (130.06) | 28509 (126.8) | 2.31 (3.72) | 2098 | 5.91 | 0.467 (283.8) | 14.74 (2.91) | 182 (83) | 64 (18) | | 29.10 (98.54) |
| | | | | | 3rd (A3) Gear | | | | | |
| 159.04 (118.6) | 26747 (119.0) | 2.50 (4.02) | 2103 | 4.74 | 0.457 (277.8) | 15.11 (2.98) | 182 (83) | 66 (19) | | 29.11 (98.58) |
| | | | | | 4th (A4) Gear | | | | | |
| 177.90 (132.6) | 21856 (97.2) | 3.01 (4.84) | 2101 | 3.18 | 0.458 (278.4) | 15.08 (2.97) | 183 (84) | 55 (13) | | 29.12 (98.61) |
| | | | | | 5th (A5) Gear | | | | | |
| 157.65 (117.5) | 19072 (84.8) | 3.43 (5.52) | 2103 | 2.72 | 0.458 (278.4) | 15.10 (2.97) | 182 (83) | 63 (17) | | 29.12 (98.61) |
| | | | | | 6th (A6) Gear | | | | | |
| 175.26 (130.6) | 15622 (69.5) | 4.21 (6.77) | 2102 | 2.11 | 0.464 (282.0) | 14.90 (2.93) | 183 (84) | 66 (19) | | 29.12 (98.61) |
| | | | | | 7th (B1) Gear | | | | | |
| 179.74 (134.0) | 13454 (59.8) | 4.93 (7.93) | 2099 | 2.27 | 0.452 (274.8) | 15.29 (3.01) | 182 (83) | 70 (21) | | 29.08 (98.48) |
| | | | | | 8th (B2) Gear | | | | | |
| 178.74 (133.28) | 13514 (60.1) | 4.88 (7.85) | 2101 | 2.02 | 0.456 (277.2) | 15.14 (2.98) | 183 (84) | 70 (21) | | 29.08 (98.48) |
| | | | | | 9th (B3) Gear | | | | | |
| 178.72 (133.27) | 13115 (58.3) | 5.11 (8.22) | 2105 | 1.94 | 0.457 (277.8) | 15.11 (2.98) | 183 (84) | 70 (21) | | 29.09 (98.51) |
| | | | | | 10th (B4) Gear | | | | | |
| 180.04 (134.3) | 12540 (55.8) | 5.49 (8.83) | 2100 | 1.67 | 0.451 (274.2) | 15.34 (3.02) | 182 (83) | 67 (19) | | 29.10 (98.54) |
| | | | | | 11th (C2) Gear | | | | | |
| 176.42 (131.6) | 11852 (52.7) | 5.63 (9.06) | 2104 | 1.67 | 0.456 (277.2) | 15.13 (2.98) | 183 (84) | 69 (21) | | 29.10 (98.54) |
| | | | | | 12th (C3) Gear | | | | | |
| 180.74 (134.8) | 11552 (51.4) | 6.07 (9.77) | 2104 | 1.59 | 0.452 (274.8) | 15.28 (3.01) | 182 (83) | 69 (21) | | 29.09 (98.51) |
| | | | | | 13th (B4) Gear | | | | | |
| 176.29 (131.46) | 10063 (44.76) | 6.61 (10.64) | 2101 | 1.50 | 0.463 (281.4) | 14.92 (2.94) | 182 (83) | 70 (21) | | 29.09 (98.51) |
| | | | | | 14th (C4) Gear | | | | | |
| 177.20 (132.16) | 9117 (40.55) | 7.29 (11.73) | 2100 | 1.52 | 0.458 (278.4) | 15.06 (2.97) | 183 (84) | 66 (19) | | 29.12 (98.61) |
| | | | | | 15th (B5) Gear | | | | | |
| 177.59 (132.45) | 8817 (39.22) | 7.55 (12.15) | 2101 | 1.25 | 0.458 (278.4) | 15.09 (2.97) | 183 (84) | 68 (20) | | 29.13 (98.65) |
| | | | | | 16th (C5) Gear | | | | | |
| 176.55 (131.66) | 7954 (35.38) | 8.34 (13.43) | 2100 | 1.05 | 0.462 (280.8) | 14.97 (2.95) | 183 (84) | 68 (20) | | 29.13 (98.65) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—8th (C1) Gear | 76.5 |
| Maximum sound level | 76.5 |
| Transport speed—no load—24th (D6) Gear | 76.5 |
| Bystander at 24th (D6) Gear | 87.0 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | | | | | |
|---|---|---|---|---|---|
| Observed Maximum Pressure psi (bar) | | | 2980 (172) remote outlet | | |
| Location | | | | | |
| Hydraulic oil temperature °F (°C) | | | 185 (85) | | |
| Location | | | hydraulic sump | | |
| Category | | | III | | |
| Quick attach | | | Yes | | |
| Hitch point distance to ground level in (mm) | 5.9 (226) | 16.2 (411) | 26.4 (671) | 34.4 (874) | 40.2 (1021) |
| Lift force on frame lb (kN) | 16075 (71.5) | 16558 (73.6) | 16417 (73.0) | 15822 (70.4) | 14983 (66.6) |

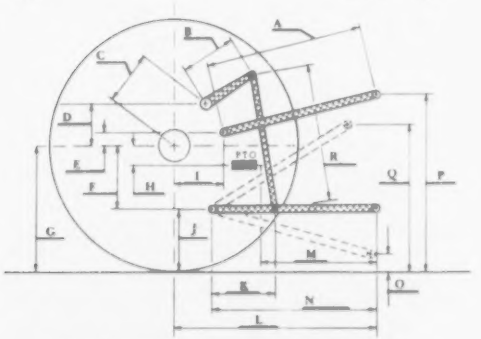
**TIRES AND WEIGHT** — **Tested Without Ballast**

| | | |
|---|---|---|
| Rear Tires | No. size (in & cm) dia. | Inflation (kPa) psi (kPa) |
| Front Tires | No. size (in & cm) dia. | Inflation (kPa) psi (kPa) |
| Height of Drawbar | | in (mm) |
| Static Weight | Rear | lb (kg) |
| | Front | lb (kg) |
| | Total | lb (kg) |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY III
Quick Attach Yes

| | |
|---|---|
| Maximum Force Exerted Through Whole Range | 11500 lbs (51.1 kN) |
| (i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2500 psi (172 Bar) |
| (ii) Pump delivers rate at minimum pressure | 43.6 GPM (165 l/min) |
| (iii) Pump delivers rate at maximum hydraulic power | 41.0 GPM (155.2 l/min) |
| Delivers pressure | 1800 psi (124 Bar) |
| Power | 11.1 Hp (7.6 kW) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 31.5 | 800 |
| B | 18.6 | 472 |
| C | 26.2 | 666 |
| D | 24.4 | 620 |
| E | 11.3 | 288 |
| F | 13.8 | 350 |
| G | 35.1 | 892 |
| H | 4.8 | 122 |
| I | 22.7 | 577 |
| J | 21.5 | 542 |
| K | 28.8 | 731 |
| L | 55.5 | 1405 |
| M | 61.8 | 1570 |
| M | 25.4 | 645 |
| N | 44.0 | 1117 |
| O | 7.9 | 201 |
| P | 48.5 | 1228 |
| Q | 40.5 | 1024 |
| R | 44.8 | 1137 |

L - to end of Quick attach

**John Deere 8560 Powrsync Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1624—SUMMARY 062
# JOHN DEERE 8760 POWRSYNC DIESEL
# 24 SPEED ALSO 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant eng mod | Temp °F (°C) air dry bulb | Barom in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | | |
| **Rated Engine Speed—(PTO speed—1109 rpm)** | | | | | | | | | |
| 256.94 (190.96) | 21160 (94.14) | 15.78 (25.40) | 2425 (2425) | 10.34 (10.34) | | | | | |
| **Maximum Power (2 Hou...** | | | | | | | | | |
| 272.82 (203.46) | 19681 (87.54) | 16.05 (25.83) | 2401 (2401) | 17.26 (17.26) | | | | | |
| **Standard Power Take-off Speed (1905 rpm)** | | | | | | | | | |
| 272.82 (203.46) | 19681 (87.54) | 16.05 (25.83) | 2401 (2401) | 17.23 (17.23) | | | | | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | | | | | |
| 256.94 (191.66) | 21160 (94.14) | 15.78 (25.40) | 2425 (2425) | 10.34 (10.34) | | | | | Air temperature |
| 227.57 (169.73) | 21160 (94.14) | 14.73 (23.71) | 2244 (2244) | 13.87 (13.87) | | | | | (°C) |
| 172.72 (128.79) | 22214 (98.83) | 12.02 (19.34) | 2481 (2481) | 14.57 (14.57) | | | | | Relative Humidity |
| 116.04 (86.55) | 22153 (98.56) | 8.04 (12.94) | 0.552 (0.824) | 12.98 (12.98) | | | | | (%) |
| 58.73 (43.80) | 22339 (99.39) | 4.08 (6.56) | 0.917 (1.367) | 8.05 (8.05) | | | | | Barometer |
| 0.57 (0.43) | 22281 (99.13) | 0.25 (0.40) | 0.000 (0.000) | 0.13 (0.13) | | | | | 29.06 in. Hg (98.42 kPa) |

Maximum Torque (Ft lb (N-m) at 1450 rpm)
Maximum Torque Rise 40.6%
Torque Rise at 1900 engine rpm 24%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant eng mod | Temp °F (°C) air dry bulb | Barom in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 257.21 (191.83) | 14768 (65.70) | 6.05 (9.73) | 2100 | 1.86 | 0.462 (0.281) | 14.97 (2.95) | 186 (85) | 67 (19) | 28.78 (97.46) |
| **75% of Pull at Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 187.25 (139.62) | 11065 (49.24) | 6.54 (10.53) | 2202 | 1.59 | 0.492 (0.299) | 14.05 (2.77) | 190 (88) | 74 (23) | 28.60 (96.85) |
| **50% of Pull at Maximum Power—12th (C3) Gear** | | | | | | | | | |
| 129.71 (96.69) | 7376 (32.81) | 6.44 (10.37) | 2224 | 0.98 | 0.564 (0.343) | 12.26 (2.42) | 183 (84) | 74 (23) | 28.59 (96.82) |
| **75% of Pull at Reduced Engine Speed—15th (B5) Gear** | | | | | | | | | |
| 188.95 (140.81) | 11064 (49.21) | 6.54 (10.53) | 1773 | 1.68 | 0.458 (0.278) | 15.76 (3.11) | 188 (86) | 71 (22) | 28.60 (96.85) |
| **50% of Pull at Reduced Engine Speed—15th (B5) Gear** | | | | | | | | | |
| 129.93 (96.84) | 7378 (32.82) | 6.45 (10.38) | 1792 | 0.98 | 0.488 (0.297) | 14.13 (2.79) | 181 (83) | 76 (24) | 28.59 (96.82) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** May - 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704.

**FUEL OIL and TIME:** **Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity** converted to 60°/60°F (15°/15°C) 0.8301 **Fuel weight** 6.912 lbs-gal (0.828 kg/l) **Oil SAE** 15W-40 **API service classification** CI/SD **To motor** 6.928 gal (26.226 l) **Drained from motor** 6.698 gal (25.355 l) **Transmission, hydraulic and final drive lubricant** John Deere HyGard fluid **Total time engine was operated** 26.5 hours.

**ENGINE:** **Make** John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *RG6101H1001194* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** (as specified) 5.12" × 5.00" (130.0 mm × 127.0 mm) **Compression ratio** 15.2 to 1 **Displacement** 618 cu in (10144 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** 3 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS:** **Fuel rate** 106.1-115.9 lb/hr (48.1-52.6 kg/hr) **High idle** 2225-2325 rpm **Turbo boost** nominal 18-22 psi (124-152 kPa) as measured 18.5 psi (128 kPa).

**CHASSIS:** **Type** four wheel drive with duals **Serial No.** *RW8760H001217* **Tread width** rear 79.7" (1871 mm) to 132.0" (3352 mm) front 79.7" (1871 mm) to 132.0" (3352 mm) **Wheel base** 153.9" (3400 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 2.06 (3.31) second 2.47 (3.98) third 2.65 (4.27) fourth 3.18 (5.12) fifth 3.65 (5.84) sixth 4.35 (7.00) seventh 4.59 (7.06) eighth 4.84 (7.79) ninth 5.26 (8.47) tenth 5.65 (9.10) eleventh 5.80 (9.34) twelfth 6.23 (10.03) thirteenth 6.78 (10.91) fourteenth 7.47 (12.02) fifteenth 7.73 (12.45) sixteenth 8.55 (13.72) seventeenth 9.27 (14.93) eighteenth 10.22 (16.45) nineteenth 10.51 (16.60) twentieth 12.36 (19.90) twenty-first 13.28 (21.37) twenty-second 15.92 (25.63) twenty-third 18.18 (29.25) twenty-fourth 21.78 (35.06) reverse 2.47 (3.98), 2.96 (4.77), 5.26 (8.47), 5.80 (9.34), 6.51 (10.16), 6.96 (11.20) **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1895 engine rpm **Unladen tractor mass** 32695 lb (14830 kg).

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant eng mod | Temp °F (°C) air dry bulb | Barom in Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **3rd (A3) Gear** | | | | | | | | | |
| 215.92 (161.01) | 32760 (145.73) | 2.47 (3.98) | 2155 | 7.91 | 0.502 (0.305) | 13.78 (2.71) | 185 (85) | 52 (11) | 28.60 (96.85) |
| **4th (A4) Gear** | | | | | | | | | |
| 230.17 (171.64) | 30738 (136.73) | 2.91 (4.68) | 2010 | 6.43 | 0.477 (0.290) | 14.50 (2.86) | 185 (85) | 62 (17) | 28.61 (96.88) |
| **5th (A5) Gear** | | | | | | | | | |
| 234.73 (175.04) | 28009 (124.60) | 3.29 (5.29) | 1974 | 4.90 | 0.455 (0.277) | 15.19 (2.99) | 186 (86) | 64 (18) | 28.62 (96.92) |
| **6th (A6) Gear** | | | | | | | | | |
| 246.51 (183.82) | 24773 (110.19) | 3.73 (6.00) | 1900 | 3.09 | 0.448 (0.272) | 15.44 (3.04) | 190 (88) | 70 (21) | 28.63 (96.95) |
| **7th (B1) Gear** | | | | | | | | | |
| 249.86 (186.32) | 24913 (110.82) | 3.76 (6.05) | 1897 | 3.09 | 0.442 (0.269) | 15.64 (3.08) | 187 (86) | 70 (21) | 28.64 (96.99) |
| **8th (B2) Gear** | | | | | | | | | |
| 254.65 (189.89) | 22815 (101.48) | 4.19 (6.74) | 1901 | 3.23 | 0.435 (0.264) | 15.90 (3.13) | 188 (87) | 68 (20) | 28.80 (97.51) |
| **9th (B3) Gear** | | | | | | | | | |
| 253.85 (189.29) | 20826 (92.64) | 4.57 (7.36) | 1903 | 2.81 | 0.436 (0.265) | 15.84 (3.12) | 189 (87) | 68 (20) | 28.80 (97.51) |
| **10th (B4) Gear** | | | | | | | | | |
| 255.84 (190.78) | 19528 (86.86) | 4.91 (7.91) | 1901 | 2.64 | 0.434 (0.264) | 15.95 (3.14) | 189 (87) | 69 (21) | 28.79 (97.48) |
| **11th (C2) Gear** | | | | | | | | | |
| 253.50 (189.03) | 18795 (83.59) | 5.05 (8.13) | 1901 | 2.46 | 0.438 (0.266) | 15.77 (3.11) | 190 (88) | 68 (20) | 28.78 (97.46) |
| **12th (C3) Gear** | | | | | | | | | |
| 256.26 (191.09) | 17664 (78.57) | 5.38 (8.66) | 1902 | 2.29 | 0.434 (0.264) | 15.93 (3.14) | 189 (87) | 67 (19) | 28.78 (97.46) |
| **13th (B4) Gear** | | | | | | | | | |
| 252.78 (188.50) | 16000 (71.17) | 5.92 (9.53) | 1901 | 2.05 | 0.439 (0.267) | 15.75 (3.10) | 190 (88) | 68 (20) | 28.78 (97.46) |
| **14th (C4) Gear** | | | | | | | | | |
| 252.51 (188.15) | 14441 (64.24) | 6.55 (10.54) | 1902 | 1.77 | 0.440 (0.268) | 15.70 (3.09) | 191 (88) | 70 (21) | 28.79 (97.49) |
| **15th (B5) Gear** | | | | | | | | | |
| 255.18 (190.80) | 13999 (62.27) | 6.78 (10.92) | 1900 | 1.72 | 0.437 (0.266) | 15.81 (3.12) | 190 (88) | 70 (21) | 28.79 (97.49) |
| **16th (C5) Gear** | | | | | | | | | |
| 253.92 (189.33) | 12702 (56.50) | 7.50 (12.06) | 1902 | 1.59 | 0.438 (0.266) | 15.78 (3.11) | 191 (88) | 69 (21) | 28.79 (97.49) |
| **17th (B6) Gear** | | | | | | | | | |
| 245.62 (183.16) | 11284 (50.19) | 8.16 (13.14) | 1903 | 1.42 | 0.451 (0.274) | 15.35 (3.02) | 191 (88) | 69 (21) | 28.80 (97.51) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 146° F (63° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The pull in 3rd gear was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1624**, Summary 062, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2100 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip | Fuel Consumption lb/hp hr (g/kW h) | Hp hr gal (kW h/l) | Temp. °F (°C) coolant | Air | Barom. inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 3rd (A3) Gear | | | | | |
| 216.70 (161.56) | 32680 (145.26) | 2.47 (3.98) | 2133 | 1.84 | 0.360 (0.219) | 13.80 (2.72) | 180 (82) | 57 (14) | 28.60 (96.85) |
| | | | | 4th (A4) Gear | | | | | |
| 224.63 (167.51) | 28330 (126.01) | 2.93 (4.72) | 2100 | 1.74 | 0.361 (0.220) | 14.23 (2.81) | 182 (83) | 70 (21) | 28.62 (96.92) |
| | | | | 5th (A5) Gear | | | | | |
| 228.04 (170.04) | 24999 (111.20) | 3.43 (5.52) | 2101 | 1.71 | 0.370 (0.225) | 14.52 (2.86) | 182 (83) | 70 (21) | 28.62 (96.92) |
| | | | | 6th (A6) Gear | | | | | |
| 230.35 (171.77) | 20727 (92.20) | 4.17 (6.71) | 2101 | 2.06 | 0.375 (0.229) | 14.56 (2.87) | 186 (85) | 70 (21) | 28.63 (96.95) |
| | | | | 7th (B1) Gear | | | | | |
| 238.39 (177.77) | 21257 (94.56) | 4.21 (6.77) | 2101 | 2.08 | 0.377 (0.229) | 15.11 (2.98) | 187 (86) | 70 (21) | 28.64 (96.99) |
| | | | | 8th (B2) Gear | | | | | |
| 240.25 (179.16) | 19865 (88.34) | 4.65 (7.49) | 2099 | 2.40 | 0.434 (0.264) | 15.23 (3.00) | 188 (87) | 68 (20) | 28.80 (97.53) |
| | | | | 9th (B3) Gear | | | | | |
| 236.68 (176.49) | 17465 (77.70) | 5.08 (8.18) | 2103 | 2.20 | 0.468 (0.285) | 14.91 (2.94) | 191 (88) | 68 (20) | 28.80 (97.53) |
| | | | | 10th (B4) Gear | | | | | |
| 239.24 (178.40) | 16443 (73.14) | 5.49 (8.84) | 2100 | 2.03 | 0.439 (0.267) | 15.07 (2.97) | 188 (87) | 69 (21) | 28.78 (97.46) |
| | | | | 11th (C2) Gear | | | | | |
| 236.14 (176.09) | 13777 (70.85) | 5.61 (9.03) | 2101 | 1.94 | 0.466 (0.283) | 14.93 (2.92) | 187 (86) | 67 (19) | 28.78 (97.46) |
| | | | | 12th (C3) Gear | | | | | |
| 237.21 (176.89) | 14748 (65.60) | 6.05 (9.73) | 2100 | 1.86 | 0.462 (0.281) | 14.97 (2.95) | 186 (85) | 67 (19) | 28.78 (97.46) |
| | | | | 13th (B5) Gear | | | | | |
| 234.49 (174.86) | 13402 (59.61) | 6.36 (10.24) | 2097 | 1.77 | 0.467 (0.284) | 14.80 (2.92) | 188 (87) | 69 (21) | 28.78 (97.46) |
| | | | | 14th (C4) Gear | | | | | |
| 233.24 (173.93) | 12002 (53.65) | 7.25 (11.67) | 2100 | 1.51 | 0.468 (0.285) | 14.77 (2.91) | 188 (87) | 70 (21) | 28.79 (97.49) |
| | | | | 15th (B5) Gear | | | | | |
| 234.55 (174.76) | 11686 (51.98) | 7.52 (12.10) | 2100 | 1.51 | 0.466 (0.283) | 14.83 (2.92) | 190 (88) | 71 (21) | 28.79 (97.49) |
| | | | | 16th (C5) Gear | | | | | |
| 255.79 (174.34) | 10565 (46.99) | 8.30 (13.36) | 2099 | 1.33 | 0.469 (0.285) | 14.75 (2.91) | 189 (87) | 70 (21) | 28.79 (97.49) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—8th (C1) Gear | 76.0 |
| Maximum sound level | 76.5 |
| Transport speed—no load—24th (D6) Gear | 75.0 |
| Bystander in 24th (D6) Gear | 87.0 |

## LUGGING ABILITY IN 12th (C3) GEAR

| Crankshaft Speed rpm | 2100 | 1890 | 1679 | 1469 | 1258 | 1054 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 14748 (65.60) | 17729 (78.86) | 19632 (87.33) | 20796 (92.51) | 20266 (90.15) | 18606 (83.65) |
| Increase in Pull % | 0 | 20 | 33 | 41 | 37 | 28 |
| Power—Hp (kW) | 237.25 (176.92) | 255.30 (190.38) | 250.48 (186.78) | 251.47 (172.61) | 193.57 (144.20) | 150.54 (112.11) |
| Speed—Mph (km/h) | 6.05 (9.71) | 5.40 (8.69) | 4.78 (7.70) | 4.17 (6.72) | 3.58 (5.76) | 3.00 (4.82) |
| Slip % | 1.86 | 2.29 | 2.64 | 2.81 | 2.81 | 2.64 |

**TIRES AND WEIGHT**

Rear Tires —Size, size, ply & psi (kPa):
Front Tires —Size, size, ply & psi (kPa):
Height of Drawbar
Static Weight —Rear
—Front
—Total

**Tested Without Ballast**
Four 18.4R42, ** 14.9/5:
Four 18.4R42, ** 14.9/5:
18 in (457 mm)
14295 lb (6480 kg)
10410 lb (4720 kg)
24695 lb (11200 kg)

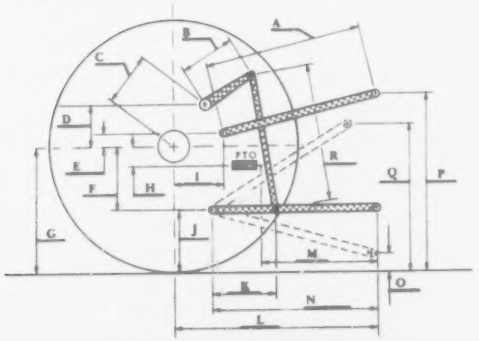
## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|---|---|
| Observed Maximum Pressure psi (Bar) | 2360 (175) |
| Location | remote outlet |
| Hydraulic oil temperature °F (°C) | 153 (67) |
| Location | hydraulic sump |
| Category | III |
| Quick attach | Yes |

| Hitch point distance to ground level in. (mm) | 8.9 (226) | 16.2 (411) | 20.4 (517) | 34.4 (874) | 40.2 (1021) |
|---|---|---|---|---|---|
| Lift force on frame lb (kg) | 16072 (7290) | 16358 (7420) | 16617 (7537) | 15422 (6995) | 14985 (6797) |
| Lift force on frame lb (kg) | 14 | 13 | 13 | 14 | 15 |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

| | |
|---|---|
| CATEGORY III | |
| Quick Attach: Yes | |
| Maximum Force Exerted Through Whole Range | 12661.8 lbs (57.4 kN) |
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2500 psi (174 Bar) |
| ii) Pump delivers rate at minimum pressure | 13.9 GPM (66.2 l/min) |
| iii) Pump delivers rate at maximum hydraulic power | 13.9 GPM (52.5 l/min) |
| Delivers pressure | 1860 psi (131 Bar) |
| Power | 16.1 Hp (11.9 kW) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 31.5 | 800 |
| B | 18.6 | 472 |
| C | 26.2 | 666 |
| D | 24.4 | 620 |
| E | 11.3 | 288 |
| F | 13.8 | 350 |
| G | 35.1 | 892 |
| H | 4.8 | 122 |
| I | 22.7 | 577 |
| J | 21.3 | 542 |
| K | 28.8 | 731 |
| L | 55.3 | 1405 |
| L* | 61.8 | 1570 |
| M | 25.4 | 645 |
| N | 44.0 | 1117 |
| O | 7.9 | 201 |
| P | 48.3 | 1228 |
| Q | 40.3 | 1024 |
| R | 44.8 | 1137 |

L to end of Quick attach

**John Deere 8760 Powrsync Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1625—SUMMARY 063
# JOHN DEERE 8960 POWRSYNC DIESEL
# 24 SPEED ALSO 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Usable | Hp hr/gal kg/kW h | Hp hr/gal kg/kW h | Mean Atmospheric Conditions |
|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | |
| **Rated Engine Speed—(PTO speed—1002 rpm)** | | | | | |
| 533.40 (398.0) | 1900 | 19.52 (14.55) | 0.403 (0.247) | 17.08 (10.46) | |
| **Maximum Power (2 Hours)** | | | | | |
| 555.34 (414.2) | 1800 | 19.24 (14.34) | 0.397 (0.243) | 17.43 (10.67) | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | |
| 535.40 (399.2) | 1900 | 19.52 (14.55) | 0.403 (0.246) | 17.08 (10.46) | Air temperature |
| 500.43 (373.1) | 2000 | 18.62 (13.88) | 0.428 (0.261) | 16.14 (9.89) | 77°F (25°C) |
| 230.06 (171.5) | 2039 | 13.43 (10.01) | 0.493 (0.302) | 14.93 (9.14) | Relative humidity |
| 155.12 (115.7) | 2077 | 11.30 (8.43) | 0.513 (0.314) | 13.88 (8.50) | 22% |
| 78.21 (58.3) | 2099 | 8.72 (6.50) | 0.771 (0.472) | 8.97 (5.49) | Barometer |
| 0.34 (0.25) | 2139 | 5.30 (3.95) | 68.193 (41.827) | 0.10 (0.06) | 29.08" Hg (98.48 kPa) |

Maximum Torque 1265 lb ft (1729 Nm) at 1248 rpm
Maximum Torque Rise 47.8%
Torque Rise at 1000 engine rpm 28%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp hr kg/kW h | Fuel Consumption Hp hr/gal kg/kW h | Temp °F (°C) fuel deg rise | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—10th (B3) Gear** | | | | | | | | | |
| 508.26 (229.87) | 19700 (87.63) | 5.87 (9.44) | 1998 | 2.22 (0.262) | 0.451 (0.276) | 16.05 (9.81) | 186 (86) | 68 (20) | 28.92 (97.93) |
| **75% of Pull at Maximum Power—10th (B3) Gear** | | | | | | | | | |
| 250.39 (188.71) | 14792 (65.80) | 6.33 (10.22) | 2044 | 1.86 (1.12) | 0.485 (0.295) | 14.26 (8.81) | 186 (86) | 77 (25) | 28.84 (97.66) |
| **50% of Pull at Maximum Power—10th (B3) Gear** | | | | | | | | | |
| 170.55 (127.82) | 9851 (43.82) | 6.48 (10.44) | 2075 | 1.22 (0.733) | 0.551 (2.47) | 12.55 (7.63) | 181 (83) | 77 (25) | 28.82 (97.60) |
| **75% of Pull at Reduced Engine Speed—13th (B4) Gear** | | | | | | | | | |
| 249.75 (186.22) | 14765 (65.68) | 6.34 (10.21) | 1703 | 1.68 (1.01) | 0.452 (0.263) | 16.01 (9.73) | 186 (86) | 77 (25) | 28.84 (97.66) |
| **50% of Pull at Reduced Engine Speed—13th (B4) Gear** | | | | | | | | | |
| 170.63 (127.24) | 9859 (43.86) | 6.49 (10.45) | 1732 | 1.51 (0.907) | 0.488 (0.297) | 14.16 (8.79) | 182 (83) | 79 (26) | 28.81 (97.56) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** May-June, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME:** Fuel No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60/60°F** *(15°/15°C)* 0.8501 **Fuel weight** 6.912 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 7.757 gal *(29.362 l)* **Drained from motor** 7.249 gal *(27.442 l)* **Transmission, hydraulic and final drive lubricant** John Deere HyGard fluid **Total time engine was operated** 313 hours.

**ENGINE: Make** Cummins Diesel **Type** six cyl. under vertical with turbocharger and intercooler **Serial No.** 11511016 **Crankshaft** lengthwise **Rated engine speed** 1900 **Bore and stroke** (as specified) 5.50" × 6.00" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.0 to 1 **Displacement** 855 cu.in *(14011 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil; radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Fuel cooler** radiator for injection pump return fuel **Muffler** vertical **Cooling medium temperature control** one thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 150.2-142.1 lb/hr *(59.0-64.5 kg/hr)* **High idle** 2080-2180 rpm **Turbo boost** nominal 19.25 psi *(131-159 kPa)* as measured 21.5 psi *(148 kPa)*

**CHASSIS: Type** four wheel drive with duals **Serial No.** *RW8960H001019* **Tread width** rear 78.8" *(2002 mm)* to 144.1" *(3659 mm)* front 78.8" *(2002 mm)* to 144.1" *(3659 mm)* **Wheel base** 133.9" *(3400 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.19 *(3.53)* second 2.63 *(4.23)* third 2.82 *(4.54)* fourth 3.38 *(5.45)* fifth 3.86 *(6.22)* sixth 4.63 *(7.45)* seventh 4.67 *(7.52)* eighth 5.15 *(8.29)* ninth 5.60 *(9.01)* tenth 6.01 *(9.58)* eleventh 6.18 *(9.94)* twelfth 6.63 *(10.67)* thirteenth 7.21 *(11.60)* fourteenth 7.95 *(12.79)* fifteenth 8.25 *(13.29)* sixteenth 9.08 *(14.60)* seventeenth 9.87 *(15.89)* eighteenth 10.88 *(17.51)* nineteenth 10.97 *(17.66)* twentieth 13.16 *(21.18)* twenty-first 14.13 *(22.77)* twenty-second 16.93 *(27.27)* twenty-third 19.34 *(31.12)* twenty-fourth 23.19 *(37.32)* reverse 2.63 *(4.23)*, 5.15 *(5.07)*, 5.60 *(9.01)*, 6.18 *(9.94)*, 6.72 *(10.81)*, 7.41 *(11.92)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1003 rpm at 1900 engine rpm **Unladen tractor mass** 35570 lb *(16134 kg)*

## DRAWBAR PERFORMANCE AT 1800 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp hr kg/kW h | Fuel Consumption Hp hr/gal kg/kW h | Temp °F (°C) fuel deg rise | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 4th (A4) Gear | | | | | |
| 278.83 (207.96) | 34462 (153.29) | 5.05 (8.13) | 1883 | 9.25 (4.55) | 0.472 (0.287) | 14.94 (9.11) | 186 (86) | 69 (21) | 28.94 (98.00) |
| | | | | 5th (A5) Gear | | | | | |
| 286.38 (213.56) | 30187 (134.28) | 5.56 (8.95) | 1861 | 5.87 (2.97) | 0.456 (0.277) | 15.16 (9.24) | 186 (86) | 73 (23) | 28.92 (97.93) |
| | | | | 6th (A6) Gear | | | | | |
| 295.96 (220.71) | 28288 (125.85) | 6.19 (9.96) | 1799 | 4.54 (2.30) | 0.442 (0.269) | 15.65 (9.54) | 187 (86) | 76 (24) | 28.92 (97.93) |
| | | | | 7th (B1) Gear | | | | | |
| 301.35 (224.85) | 29611 (131.71) | 6.23 (9.84) | 1800 | 5.90 (2.99) | 0.432 (0.263) | 16.02 (9.76) | 186 (85) | 70 (21) | 28.87 (97.77) |
| | | | | 8th (C1) Gear | | | | | |
| 300.12 (223.86) | 29472 (131.07) | 6.09 (9.80) | 1796 | 5.47 (2.77) | 0.434 (0.264) | 15.94 (9.71) | 187 (86) | 76 (24) | 28.80 (97.53) |
| | | | | 9th (B2) Gear | | | | | |
| 304.72 (227.27) | 22208 (98.78) | 8.15 (6.28) | 1800 | 5.02 (2.54) | 0.427 (0.260) | 16.18 (9.86) | 190 (88) | 76 (24) | 28.81 (97.56) |
| | | | | 10th (B3) Gear | | | | | |
| 310.49 (231.57) | 20988 (93.36) | 8.55 (6.85) | 1799 | 2.49 (1.26) | 0.425 (0.257) | 16.55 (10.08) | 188 (86) | 68 (20) | 28.92 (97.93) |
| | | | | 11th (C2) Gear | | | | | |
| 301.82 (225.06) | 19858 (88.33) | 8.70 (9.37) | 1800 | 2.49 (1.26) | 0.429 (0.261) | 16.12 (9.82) | 187 (86) | 70 (21) | 28.88 (97.80) |
| | | | | 12th (C3) Gear | | | | | |
| 307.52 (229.31) | 18772 (83.50) | 9.14 (9.89) | 1805 | 2.22 (1.12) | 0.425 (0.257) | 16.34 (9.95) | 187 (86) | 72 (22) | 28.87 (97.77) |
| | | | | 13th (B4) Gear | | | | | |
| 305.09 (227.51) | 17080 (75.98) | 9.70 (10.76) | 1805 | 2.04 (1.03) | 0.425 (0.258) | 16.25 (9.89) | 188 (87) | 75 (23) | 28.85 (97.70) |
| | | | | 14th (C4) Gear | | | | | |
| 305.04 (227.47) | 15482 (68.87) | 7.59 (11.89) | 1799 | 1.86 (0.93) | 0.427 (0.260) | 16.18 (9.85) | 190 (88) | 74 (23) | 28.84 (97.66) |
| | | | | 15th (B5) Gear | | | | | |
| 306.49 (228.55) | 14986 (66.66) | 7.67 (12.34) | 1802 | 1.68 (0.84) | 0.425 (0.259) | 16.25 (9.89) | 188 (87) | 74 (23) | 28.85 (97.65) |
| | | | | 16th (C5) Gear | | | | | |
| 304.70 (227.21) | 15481 (68.86) | 8.48 (13.64) | 1805 | 1.69 (0.84) | 0.427 (0.260) | 16.17 (9.84) | 188 (87) | 76 (24) | 28.82 (97.60) |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 102° F *(39° C)*. This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The pull in 3rd (A3) and 4th (A4) gears was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1625**, Summary 063, December 22, 1989.

LOUIS J. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Slip % | Weight t | Fuel Consumption lb/hp-hr (g/kW-h) | Hp-hr per gal (kW-h per L) | Temp. °F (°C) | Air cleaner restriction in. (mm) | Boost psi (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 8th (A5) Gear | | | | |
| 245.00 (182.64) | 34316 (152.66) | 2.71 (4.36) | 10.2 | 14.97 | 0.580 (352.98) | 13.83 (3.65) | 180 (82) | 70 (1778) | 29.04 (98.32) |
| 244.95 (182.60) | 35264 (156.87) | 2.65 (4.26) | 11.2 | 15.04 | 0.594 (361.52) | 13.72 (3.62) | 181 (83) | 72 (1829) | 29.04 (98.32) |
| | | | | | 6th (A4) Gear | | | | |
| 261.10 (194.70) | 33176 (147.60) | 3.13 (5.04) | 8.04 | 15.02 | 0.547 (332.90) | 14.44 (3.81) | 180 (82) | 64 (1626) | 28.94 (97.98) |
| 260.92 (194.56) | 34134 (151.86) | 3.06 (4.92) | 9.1 | 15.09 | 0.559 (340.19) | 14.26 (3.76) | 181 (83) | 66 (1676) | 28.94 (97.98) |
| | | | | | 5th (A3) Gear | | | | |
| 267.35 (199.36) | 29477 (131.13) | 3.63 (5.84) | 6.08 | 14.98 | 0.481 (292.71) | 14.99 (3.96) | 180 (82) | | 28.93 (97.95) |
| 267.35 (199.36) | 30177 (134.25) | 3.57 (5.75) | 7.1 | 15.04 | 0.492 (299.41) | 14.79 (3.91) | 181 (83) | 66 (1676) | 28.93 (97.95) |
| | | | | | 4th (A2) Gear | | | | |
| 255.96 (190.87) | 24764 (110.16) | 4.44 (7.14) | 6.03 | 15.02 | 0.455 (276.84) | 15.25 (4.03) | 167 (75) | 75 (1905) | 28.92 (97.91) |
| 255.96 (190.87) | 25252 (112.33) | 4.36 (7.02) | 7.1 | 15.09 | 0.464 (282.32) | 15.05 (3.98) | 169 (76) | 77 (1956) | 28.92 (97.91) |
| | | | | | 3rd (B1) Gear | | | | |
| 303.49 (226.30) | 25292 (112.47) | 5.11 (8.22) | 8.03 | 9.47 | 0.440 (267.72) | 15.72 (4.15) | 180 (82) | 74 (1880) | 28.90 (97.84) |
| 303.49 (226.30) | 26127 (116.19) | 5.04 (8.11) | 9.1 | 9.54 | 0.454 (276.26) | 15.47 (4.09) | 181 (83) | 77 (1956) | 28.90 (97.84) |
| | | | | | 2nd (C1) Gear | | | | |
| 299.47 (223.31) | 22354 (99.41) | 6.08 (9.78) | 6.06 | 5.20 | 0.444 (270.21) | 15.98 (4.22) | 167 (75) | 77 (1956) | 28.90 (97.84) |
| 299.47 (223.31) | 23027 (102.41) | 6.02 (9.69) | 7.1 | 5.27 | 0.455 (276.84) | 15.72 (4.15) | 169 (76) | 79 (2007) | 28.90 (97.84) |
| | | | | | 9th (B2) Gear | | | | |
| 302.55 (225.61) | 20826 (92.64) | 5.44 (8.76) | 8.07 | 2.45 | 0.459 (279.27) | 15.76 (4.16) | 167 (75) | 68 (1727) | 28.93 (97.95) |
| 302.55 (225.61) | 21442 (95.38) | 5.36 (8.62) | 9.1 | 2.48 | 0.470 (285.96) | 15.50 (4.09) | 169 (76) | 70 (1778) | 28.93 (97.95) |
| | | | | | 10th (B3) Gear | | | | |
| 308.26 (229.87) | 19700 (87.63) | 5.67 (9.12) | 8.08 | 2.22 | 0.451 (274.38) | 16.05 (4.24) | 166 (74) | 68 (1727) | 28.92 (97.91) |
| 308.26 (229.87) | 20277 (90.19) | 5.60 (9.01) | 9.1 | 2.25 | 0.462 (281.07) | 15.78 (4.17) | 168 (75) | 70 (1778) | 28.92 (97.91) |
| | | | | | 11th (C2) Gear | | | | |
| 298.67 (222.72) | 18552 (82.52) | 6.04 (9.72) | 8.09 | 2.15 | 0.444 (270.21) | 15.97 (4.22) | 167 (75) | 70 (1778) | 28.89 (97.81) |
| 298.67 (222.72) | 19122 (85.06) | 5.97 (9.61) | 9.1 | 2.18 | 0.455 (276.84) | 15.71 (4.15) | 169 (76) | 72 (1829) | 28.89 (97.81) |
| | | | | | 12th (C3) Gear | | | | |
| 301.98 (225.19) | 17472 (77.72) | 6.48 (10.43) | 8.09 | 2.15 | 0.457 (278.05) | 15.60 (4.12) | 167 (75) | 72 (1829) | 28.86 (97.71) |
| 301.98 (225.19) | 18014 (80.13) | 6.40 (10.30) | 9.1 | 2.18 | 0.468 (284.74) | 15.35 (4.06) | 169 (76) | 74 (1880) | 28.86 (97.71) |
| | | | | | 13th (B4) Gear | | | | |
| 298.20 (222.37) | 15815 (70.35) | 7.07 (11.38) | 8.09 | 1.77 | 0.444 (270.21) | 15.55 (4.11) | 167 (75) | 74 (1880) | 28.84 (97.64) |
| 298.20 (222.37) | 16345 (72.71) | 6.99 (11.25) | 9.1 | 1.80 | 0.455 (276.84) | 15.30 (4.04) | 169 (76) | 75 (1905) | 28.84 (97.64) |
| | | | | | 14th (C4) Gear | | | | |
| 299.52 (223.36) | 14509 (64.55) | 7.82 (12.58) | 9.01 | 1.68 | 0.444 (270.21) | 15.58 (4.12) | 167 (75) | 74 (1880) | 28.85 (97.67) |
| 299.52 (223.36) | 14992 (66.70) | 7.74 (12.46) | 10.1 | 1.71 | 0.455 (276.84) | 15.33 (4.05) | 169 (76) | 75 (1905) | 28.85 (97.67) |
| | | | | | 15th (B5) Gear | | | | |
| 300.57 (224.16) | 13922 (61.93) | 8.09 (13.02) | 8.98 | 1.49 | 0.442 (268.99) | 15.65 (4.14) | 167 (75) | 74 (1880) | 28.82 (97.60) |
| 300.57 (224.16) | 14388 (64.00) | 8.01 (12.89) | 10.1 | 1.52 | 0.453 (275.62) | 15.40 (4.07) | 169 (76) | 75 (1905) | 28.82 (97.60) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—7th (B1) Gear | 74.0 |
| Maximum sound level | 77.0 |
| Transport speed—no load—24th (D8) Gear | 75.0 |
| Bystander in 24th (D8) Gear | 67.0 |

## LUGGING ABILITY IN 12th (C3) GEAR

| Crankshaft Speed rpm | 1898 | 1712 | 1519 | 1355 | 1156 | 951 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 17472 (77.72) | 19540 (86.92) | 21692 (96.49) | 23689 (105.37) | 24113 (107.26) | 22134 (98.46) |
| Increase in Pull % | 0 | 12 | 24 | 36 | 38 | 27 |
| Power—Hp (kW) | 301.98 (225.19) | 305.56 (226.38) | 297.66 (221.97) | 285.81 (211.64) | 245.38 (182.98) | 189.64 (141.42) |
| Speed—Mph (km/h) | 6.48 (10.43) | 5.83 (9.38) | 5.15 (8.28) | 4.63 (7.23) | 3.82 (6.14) | 3.21 (5.17) |
| Slip % | 2.15 | 2.58 | 3.76 | 5.29 | 7.47 | 5.11 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

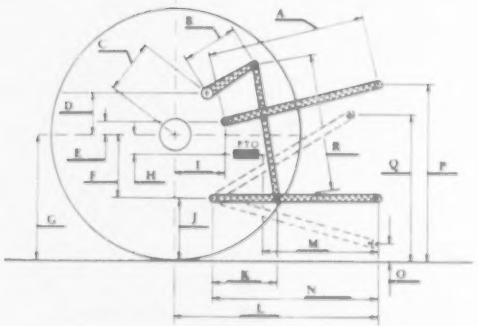
| | |
|---|---|
| Observed Maximum Pressure psi (bar) | 2540 (175) |
| Location | remote outlet |
| Hydraulic oil temperature °F(°C) | 150 (66) |
| Location | hydraulic sump |
| Category | IV |
| Quick attach | Yes |
| Hitch point distance to ground level in. (mm) | 9.0 (229) 16.2 (411) 29.6 (670) 38.4 (975) 95.2 (1768) |
| Lift force on frame lb (kN) | 13970 (62.14) 16560 (73.67) 16516 (73.47) 13554 (60.29) 13968 (62.13) |

## TIRES AND WEIGHT

| | | Tested Without Ballast |
|---|---|---|
| Rear Tires | [illegible] | [illegible] |
| Front Tires | [illegible] | [illegible] |
| Hangle of Drawbar | | [illegible] |
| Static Weight | Rear | [illegible] lb (kg) |
| | Front | [illegible] lb (kg) |
| | Total | [illegible] lb (kg) |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

| | |
|---|---|
| CATEGORY IV | |
| Quick Attach: Yes | |
| Maximum Force Exerted Through Whole Range | [illegible] lbs (kN) |
| (1) Opening pressure of relief valve | N/A |
| Sustained pressure with pump stalled | 2540 psi (175 Bar) |
| (2) Pump delivers rate at minimum pressure | 59.9 GPM (226.8 l/min) |
| (2a) Pump delivers rate at maximum hydraulic power | 56.2 GPM (212.8 l/min) |
| Delivers pressure | 1930 psi (133 Bar) |
| Power | 65.7 Hp (49.0 kW) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 51.0 | 1287 |
| B | 18.6 | 472 |
| C | 26.2 | 666 |
| D | 24.4 | 620 |
| E | 11.5 | 288 |
| F | 13.8 | 350 |
| G | 36.1 | 918 |
| H | 4.8 | 122 |
| I | 22.7 | 577 |
| J | 22.5 | 568 |
| K | 28.5 | 718 |
| L | 54.5 | 1385 |
| M | 60.5 | 1537 |
| N | 24.6 | 625 |
| O | 43.2 | 1097 |
| P | 8.9 | 226 |
| Q | 49.5 | 1254 |
| R | 40.9 | 1039 |
| S | 44.6 | 1133 |

L to end of Quick attach

**John Deere 8960 Powrsync Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1626—SUMMARY 064
# JOHN DEERE 4055 QUADRANGE DIESEL
# 16 SPEED

## POWER TAKE-OFF PERFORMANCE

## MAXIMUM POWER AND FUEL CONSUMPTION

## VARYING POWER AND FUEL CONSUMPTION

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

**Location of Test:** [illegible] Agricultural Equipment, Lincoln, Nebraska (40°51'00"N), U.S.A.

**Dates of Test:** September [illegible], 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL, OIL and TIME:** Fuel: No. 2 Diesel. Cetane No. [illegible]. Specific gravity converted to 60°/60°F (15°/15°C): 0.8301. Fuel weight: 7.310 lb/gal (0.876 kg/l). Oil: SAE 15W-40, API service classification CD/SD. To motor: 3.772 gal (14.280 l). Drained from motor: 3.521 gal (13.328 l). Transmission and hydraulic lubricant: John Deere Hy-Gard fluid. Total time engine was operated: 270 hours.

**ENGINE:** Make: John Deere Diesel. Type: [illegible] under vertical with turbocharger. Serial No.: *RW4055H001751*. Crankshaft length: [illegible]. Rated engine speed: 2200. Bore and stroke: as specified, 4.500 × 4.750 in (114.3 × 120.7 mm). Compression ratio: 16.0 to 1. Displacement: 466 cu in (7634 cc). Starting system: 12 volt. Lubrication: pressure. Air cleaner: two paper elements. Oil filter: one full flow cartridge. Oil cooler: engine coolant heat exchanger for crankcase oil; radiator for hydraulic and transmission oil. Fuel filter: one paper element and prefilter. Muffler: vertical. Cooling: medium temperature control: thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS:** Fuel rate: 44.1 [illegible] lb/hr (20.0 [illegible] kg/hr). High idle: 2550-2400 rpm. Turbo boost: nominal 10-15 psi (69-90 kPa), as measured 12.5 psi (86 kPa).

**CHASSIS:** Type: standard. Serial No.: *RW4055H001751*. Tread width: rear 62.0" (1574 mm), to 110.2" (2800 mm); front 58.0" (1470 mm), to 82.0" (2080 mm). Wheel base: 108.7" (2710 mm). Hydraulic control system: direct engine drive. Transmission: sciscrew gear fixed ratio with partial (2) operator controlled powershift. Nominal travel speeds: mph (km/h): low 2.14 (3.44); second 2.71 (4.37); third 3.55 (5.69); fourth 4.68 (7.22); fifth 4.92 (7.92); sixth 5.85 (9.38); seventh 6.25 (10.06); eighth 7.40 (11.92); ninth 8.12 (13.08); tenth 8.95 (14.40); eleventh 9.65 (15.50); twelfth 10.52 (16.61); thirteenth 11.36 (18.29); fourteenth 12.25 (19.69); fifteenth 14.78 (21.80); sixteenth 18.77 (30.21); reverse 5.42 (5.52), 4.34 (7.00), 7.82 (12.67), 9.52 (15.01), 10.00 (16.09), 11.84 (19.07). Clutch: multiple wet disc hydraulically power actuated by foot pedal. Brakes: multiple wet disc hydraulically power actuated by two foot pedals which can be locked together. Steering: hydrostatic. Power take-off: 540 rpm at 2201 engine rpm and 1002 rpm at 2209 engine rpm. Unladen tractor mass: 12150 lb (5502 kg).

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 120°F (54°C). The tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The tractor did not meet manufacturer's 5 point lift capacity (lift of 6930 lb (2907 kg) at 8470 lb (3842 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD tractor standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1626**, Summary 064, December 22, 1989.

LOUIS F. LEVITICUS
Engineer in Charge

K. VON BARGEN
B. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

# NEBRASKA OECD TRACTOR TEST 1627—SUMMARY 065
# JOHN DEERE 4255 QUADRANGE DIESEL
# 16 SPEED

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** September, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL, OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.8500 **Fuel weight** 6.910 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CI/SD **To motor** 4.000 gal *(15.392 l)* **Drained from motor** 3.800 gal *(14.686 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Total time engine was operated** 25.0 hours

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6076T109300** **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 4.75" *(115.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 49.6-54.1 lb/hr *(22.5-24.5 kg/hr)* **High idle** 2350-2400 rpm **Turbo boost** nominal 12-15 psi *(83-103 kPa)* as measured 14.8 psi *(102 kPa)*

**CHASSIS: Type** standard **Serial No.** *RW4255H001914* **Tread width** rear 62.0" *(1574 mm)* to 110.2" *(2800 mm)* front 58.0" *(1470 mm)* to 82.0" *(2080 mm)* **Wheel base** 106.7" *(2710 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.14 *(3.44)* second 2.71 *(4.37)* third 3.53 *(5.69)* fourth 4.48 *(7.22)* fifth 4.92 *(7.92)* sixth 5.83 *(9.38)* seventh 6.25 *(10.06)* eighth 7.40 *(11.92)* ninth 8.12 *(13.08)* tenth 8.95 *(14.40)* eleventh 9.63 *(15.50)* twelfth 10.32 *(16.61)* thirteenth 11.36 *(18.29)* fourteenth 12.23 *(19.69)* fifteenth 14.78 *(23.80)* sixteenth 18.77 *(30.23)* reverse 3.42 *(5.51)*, 4.34 *(7.00)*, 7.87 *(12.67)*, 9.32 *(15.01)*, 10.00 *(16.09)*, 11.84 *(19.07)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm **Unladen tractor mass** 12225 lb *(5545 kg)*

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Gear | Belt pull lbs (kN) | Belt speed fpm (m/s) | Main transmission gear |
|---|---|---|---|---|---|
| 125.69 (93.73) | 2200 | 7.51 | 0.420 (1.868) | 16.46 (5.017) | 4th (A4) |
| 125.90 (93.89) | 1900 | 5.29 | 0.592 (2.634) | 13.96 (4.255) | 4th (A4) |

**MAXIMUM POWER AND FUEL CONSUMPTION**

**Rated Engine Speed—(PTO speed—1002 rpm)**

| | | | | | |
|---|---|---|---|---|---|
| 125.69 (93.73) | 2200 | 7.51 | 0.420 (1.868) | 16.46 (5.017) | 4th (A4) |
| 125.90 (93.89) | 1900 | 5.29 | 0.592 (2.634) | 13.96 (4.255) | 4th (A4) |

**Maximum Power (2 Hours)**

| | | | | | |
|---|---|---|---|---|---|
| 125.90 (93.89) | 1900 | 5.29 | 0.592 (2.634) | 13.96 (4.255) | 4th (A4) |

**VARYING POWER AND FUEL CONSUMPTION**

| Power Hp (kW) | Crank shaft speed rpm | Gear | Belt pull lbs (kN) | Belt speed fpm (m/s) | Air temperature |
|---|---|---|---|---|---|
| 125.69 (93.73) | 2200 | 7.51 | 0.420 (1.868) | 16.46 (5.017) | 2nd (A2) |
| 109.79 (81.87) | 2200 | 7.08 | 0.443 (1.971) | 15.51 (4.728) | Relative humidity |
| 89.30 (66.59) | 2322 | 6.00 | 0.450 (2.002) | 14.12 (4.303) | 90% |
| 55.92 (41.70) | 2343 | 4.73 | 0.565 (2.513) | 11.92 (3.633) | Barometer |
| 28.17 (21.01) | 2361 | 3.63 | 0.595 (2.646) | 9.72 (2.962) | 29.16 Hg (98.76 kPa) |
| 1.03 (0.77) | 2378 | 2.36 | 17.152 (0.076) | 0.40 (0.122) | |

Maximum Torque 300 lb ft (413.5 N·m) at 1232 rpm
Maximum Torque Rise 34%
Torque Rise at 1000 engine rpm 27%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr per gal (kW h/l) | Temp °F (°C) cool ing cond | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 112.26 (83.72) | 5925 (26.36) | 7.11 (11.44) | 2201 | 5.15 | 0.488 (0.296) | 15.01 (2.96) | 185 (85) | 64 (18) | 29.07 (98.44) |
| **75% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 89.67 (66.87) | 4479 (19.92) | 7.51 (12.08) | 2508 | 2.48 | 0.505 (0.306) | 15.75 (3.11) | 185 (85) | 66 (19) | 29.00 (98.21) |
| **50% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 60.50 (45.12) | 2967 (13.20) | 7.65 (12.31) | 2532 | 1.66 | 0.508 (0.308) | 15.80 (3.12) | 180 (82) | 66 (19) | 29.00 (98.21) |
| **75% of Pull at Reduced Engine Speed—11th (C3) Gear** | | | | | | | | | |
| 89.65 (66.85) | 4479 (19.92) | 7.50 (12.06) | 1772 | 2.49 | 0.452 (0.275) | 15.28 (3.01) | 182 (83) | 67 (19) | 29.00 (98.21) |
| **50% of Pull at Reduced Engine Speed—11th (C3) Gear** | | | | | | | | | |
| 60.45 (45.07) | 2967 (13.20) | 7.64 (12.30) | 1791 | 1.66 | 0.307 (0.187) | 15.02 (2.96) | 177 (80) | 68 (20) | 29.00 (98.21) |

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr per gal (kW h/l) | Temp °F (°C) cool ing cond | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **5rd (A3) Gear** | | | | | | | | | |
| 95.79 (71.43) | 10697 (47.58) | 5.36 (8.63) | 2297 | 8.24 | 0.509 (0.310) | 13.52 (2.67) | 182 (83) | 51 (11) | 29.04 (98.34) |
| **4th (A4) Gear** | | | | | | | | | |
| 110.24 (82.21) | 10175 (45.26) | 4.06 (6.54) | 2166 | 7.29 | 0.470 (0.286) | 14.70 (2.90) | 183 (84) | 54 (12) | 29.04 (98.34) |
| **5th (B1) Gear** | | | | | | | | | |
| 111.90 (83.45) | 9757 (43.41) | 4.51 (7.26) | 2076 | 6.32 | 0.458 (0.279) | 15.08 (2.97) | 184 (84) | 56 (14) | 29.04 (98.34) |
| **6th (C1) Gear** | | | | | | | | | |
| 112.53 (83.92) | 8964 (39.87) | 4.71 (7.58) | 1992 | 5.56 | 0.445 (0.271) | 15.53 (3.06) | 186 (85) | 64 (18) | 29.05 (98.31) |
| **7th (B2) Gear** | | | | | | | | | |
| 114.64 (85.49) | 8482 (37.73) | 5.07 (8.16) | 1898 | 5.10 | 0.440 (0.268) | 15.70 (3.09) | 185 (85) | 64 (18) | 29.08 (98.48) |
| **8th (C2) Gear** | | | | | | | | | |
| 115.39 (86.05) | 7124 (31.69) | 6.08 (9.79) | 1901 | 4.01 | 0.456 (0.277) | 15.86 (3.13) | 186 (85) | 64 (18) | 29.06 (98.41) |
| **9th (B3) Gear** | | | | | | | | | |
| 114.25 (85.18) | 6568 (29.12) | 6.75 (10.85) | 1904 | 3.37 | 0.458 (0.279) | 15.78 (3.11) | 186 (85) | 64 (18) | 29.05 (98.37) |
| **10th (D1) Gear** | | | | | | | | | |
| 114.26 (85.21) | 5769 (25.66) | 7.45 (11.95) | 1901 | 3.15 | 0.459 (0.279) | 15.74 (3.10) | 186 (85) | 64 (18) | 29.08 (98.34) |
| **11th (C3) Gear** | | | | | | | | | |
| 113.61 (84.72) | 5322 (23.67) | 8.01 (12.88) | 1899 | 2.81 | 0.460 (0.280) | 15.71 (3.09) | 186 (85) | 64 (18) | 29.08 (98.34) |

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr per gal (kW h/l) | Temp °F (°C) cool ing cond | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **2nd (A2) Gear** | | | | | | | | | |
| 95.89 (70.92) | 14627 (65.06) | 2.41 (3.87) | 2295 | 14.04 | 0.535 (0.325) | 12.92 (2.54) | 181 (83) | 55 (13) | 29.14 (98.68) |
| **3rd (A3) Gear** | | | | | | | | | |
| 109.72 (81.82) | 12994 (57.80) | 3.17 (5.10) | 2125 | 6.57 | 0.472 (0.287) | 14.64 (2.88) | 186 (85) | 64 (18) | 29.12 (98.61) |
| **4th (A4) Gear** | | | | | | | | | |
| 112.87 (84.17) | 10857 (48.21) | 3.91 (6.29) | 2025 | 4.29 | 0.452 (0.275) | 15.27 (3.00) | 186 (85) | 72 (22) | 29.11 (98.58) |
| **5th (B1) Gear** | | | | | | | | | |
| 112.06 (83.56) | 10402 (46.27) | 4.04 (6.50) | 1901 | 4.14 | 0.449 (0.273) | 15.40 (3.03) | 186 (85) | 72 (22) | 29.10 (98.54) |
| **6th (C1) Gear** | | | | | | | | | |
| 111.66 (83.26) | 8678 (38.60) | 4.85 (7.77) | 1901 | 5.26 | 0.448 (0.272) | 15.43 (3.04) | 185 (85) | 72 (22) | 29.08 (98.48) |
| **7th (B2) Gear** | | | | | | | | | |
| 115.42 (86.07) | 8578 (37.27) | 5.17 (8.31) | 1897 | 5.18 | 0.454 (0.276) | 15.91 (3.13) | 187 (86) | 74 (23) | 29.07 (98.44) |
| **8th (C2) Gear** | | | | | | | | | |
| 115.69 (86.27) | 7028 (31.26) | 6.17 (9.93) | 1902 | 2.61 | 0.455 (0.276) | 15.90 (3.13) | 188 (86) | 76 (24) | 29.06 (98.41) |
| **9th (B3) Gear** | | | | | | | | | |
| 115.45 (86.60) | 6268 (27.88) | 6.79 (10.92) | 1901 | 2.45 | 0.443 (0.270) | 15.59 (3.07) | 188 (86) | 76 (24) | 29.06 (98.41) |
| **10th (D1) Gear** | | | | | | | | | |
| 112.56 (83.94) | 5634 (25.06) | 7.49 (12.06) | 1901 | 2.29 | 0.447 (0.272) | 15.47 (3.05) | 187 (86) | 76 (24) | 29.06 (98.41) |
| **11th (C3) Gear** | | | | | | | | | |
| 112.07 (83.57) | 5201 (23.14) | 8.08 (13.00) | 1900 | 2.04 | 0.447 (0.272) | 15.47 (3.05) | 188 (86) | 77 (25) | 29.06 (98.41) |

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 123° F *(50° C)*. This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 6550 lb *(2971 kg)* or 8470 lb *(3842 kg)* with lift assist cylinder. The pull in 3rd (A3) gear (unballasted tractor) was limited by tire tangential pull. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1627**, Summary 065, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp/hr (kg/kW/h) | Hp hr/gal (kW/h/l) | Temp. F (°C) cool. mod. | Air duct | Barom. inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2nd (A2) Gear | | | | | |
| 93.99 (70.09) | 14635 (65.1) | 2.41 (3.88) | 2293 | 14.04 | 0.384 (0.325) | 12.95 (2.35) | 182 (83) | 55 (13) | 29.13 (98.63) |
| | | | | 3rd (A3) Gear | | | | | |
| 108.17 (80.66) | 12251 (54.4) | 3.32 (5.34) | 2200 | 3.38 | 0.379 (0.291) | 14.42 (2.64) | 184 (84) | 62 (17) | 29.12 (98.61) |
| | | | | 4th (A4) Gear | | | | | |
| 109.92 (81.97) | 9832 (42.6) | 4.28 (6.89) | 2200 | 3.66 | 0.369 (0.285) | 14.74 (2.90) | 185 (85) | 68 (20) | 29.11 (98.58) |
| | | | | 5th (B1) Gear | | | | | |
| 109.85 (81.90) | 8758 (38.8) | 4.71 (7.59) | 2200 | 3.34 | 0.373 (0.288) | 14.62 (2.88) | 185 (85) | 72 (22) | 29.10 (98.54) |
| | | | | 6th (C1) Gear | | | | | |
| 109.76 (81.83) | 7526 (32.5) | 5.62 (9.04) | 2201 | 2.76 | 0.374 (0.288) | 14.59 (2.87) | 186 (85) | 72 (22) | 29.09 (98.51) |
| | | | | 7th (B2) Gear | | | | | |
| 111.90 (83.44) | 6975 (31.0) | 6.02 (9.69) | 2197 | 2.61 | 0.365 (0.281) | 14.86 (2.93) | 185 (85) | 76 (24) | 29.07 (98.44) |
| | | | | 8th (C2) Gear | | | | | |
| 110.56 (82.44) | 5776 (25.6) | 7.18 (11.55) | 2202 | 2.20 | 0.370 (0.286) | 14.70 (2.90) | 185 (85) | 76 (24) | 29.06 (98.41) |
| | | | | 9th (B3) Gear | | | | | |
| 109.55 (81.69) | 5196 (23.1) | 7.98 (12.72) | 2203 | 2.04 | 0.374 (0.288) | 14.57 (2.87) | 185 (85) | 76 (24) | 29.06 (98.41) |
| | | | | 10th (D1) Gear | | | | | |
| 108.18 (80.67) | 4637 (20.72) | 8.71 (14.02) | 2201 | 1.96 | 0.380 (0.292) | 14.41 (2.84) | 186 (86) | 76 (24) | 29.06 (98.41) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—5th (B1) Gear | 76.5 |
| Maximum sound level | 76.5 |
| Transport speed—no load—16th (D4) Gear | 75.5 |
| Bystander in 16th (D4) Gear | 82.0 |

## LUGGING ABILITY IN 7th (B2) GEAR

| Crankshaft Speed rpm | 2197 | 1985 | 1755 | 1539 | 1322 | 1101 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 6975 (31.02) | 7907 (35.17) | 8771 (39.02) | 9086 (40.42) | 9268 (41.23) | 9148 (40.69) |
| Increase in Pull % | 0 | 13 | 26 | 30 | 33 | 31 |
| Power—Hp (kW) | 111.90 (83.44) | 114.26 (85.21) | 111.65 (83.26) | 101.23 (75.49) | 88.60 (66.07) | 72.84 (54.32) |
| Speed—Mph (km/h) | 6.02 (9.69) | 5.42 (8.72) | 4.77 (7.68) | 4.18 (6.72) | 3.59 (5.77) | 2.99 (4.81) |
| Slip % | 2.61 | 3.10 | 3.26 | 3.58 | 3.58 | 3.58 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | | | | | |
|---|---|---|---|---|---|
| Observed Maximum Pressure psi (bar) | 2570 (177) | | | | |
| Location | remote outlets | | | | |
| Hydraulic oil temperature °F(°C) | 140 (60) | | | | |
| Location | transmission sump | | | | |
| Category | II | | | | |
| Quick attach | No | | | | |
| Hitch point distance to ground level in (mm) | 8.7 (221) | 15.7 (399) | 22.4 (569) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kN) | 7550 (33.6) | 7482 (33.3) | 7199 (32.0) | 6526 (29.0) | 6175 (27.5) |
| with lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 22.3 (566) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kN) | 9853 (43.8) | 9872 (43.9) | 9540 (42.4) | 8655 (38.4) | 8077 (35.9) |

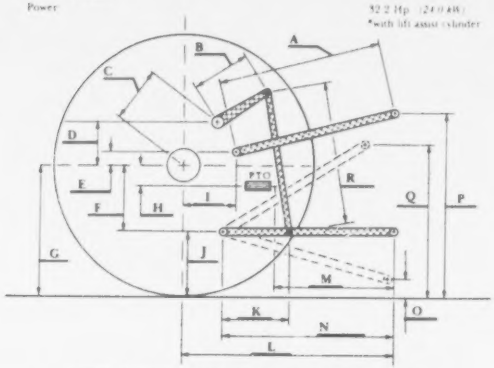
| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—No., size, psi & psi (kPa) | four 18.4R38 * 12 (83) | Two 18.4R38 * 16 (110) |
| Ballast—Duals (total) | 1410 lb (640 kg) | None |
| —Cast Iron (total) | 1000 lb (454 kg) | None |
| Front Tires—No., size, psi & psi (kPa) | Two 11.00/16, 8, 40 (275) | Two 11.00/16, 8, 40 (275) |
| Ballast—Liquid (total) | None | None |
| —Tow Equip (total) | 170 lb (77 kg) | None |
| Height of Drawbar | 21.5 in (545 mm) | 22 in (560 mm) |
| Static Weight—Rear | 11013 lb (4998 kg) | 8450 lb (3834 kg) |
| —Front | 5290 lb (2178 kg) | 3795 lb (1721 kg) |
| —Total | 16303 lb (7176 kg) | 12245 lb (5555 kg) |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY II
Quick Attach: None

| | |
|---|---|
| Maximum Force Exerted Through Whole Range | 5504 lbs (24.5 kN)<br>*7281 lbs (32.4 kN) |
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2570 psi (177 Bar) |
| ii) Pump delivery rate at minimum pressure | 27.4 GPM (103.7 l/min) |
| iii) Pump delivery rate at maximum hydraulic power | 26.3 GPM (99.6 l/min) |
| Delivery pressure | 2100 psi (145 Bar) |
| Power | 52.2 Hp (24.0 kW) |

*with lift assist cylinder




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 26.6 | 676 |
| B | 11.5 | 292 |
| C | 11.3 | 287 |
| D | 10.9 | 278 |
| E | 5.6 | 143 |
| F | 10.1 | 256 |
| G | 33.1 | 842 |
| H | 6.5 | 165 |
| I | 14.3 | 362 |
| J | 22.9 | 583 |
| K | 23.1 | 587 |
| L | 41.6 | 1056 |
| M | 22.0 | 558 |
| N | 37.1 | 942 |
| O | 8.3 | 211 |
| P | 43.0 | 1093 |
| Q | 35.5 | 903 |
| R | 32.8 | 833 |

**John Deere 4255 Quadrange Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1628—SUMMARY 066
# JOHN DEERE 4455 QUADRANGE DIESEL
# 16 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power HP (kW) | Crankshaft speed rpm | Gal/hr (L/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/L) | Mean Atmospheric Conditions |
|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | |
| **Rated Engine Speed—(PTO speed—1002 rpm)** | | | | | |
| 142.69 (106.40) | 2200 | 8.37 (31.67) | 0.405 (0.246) | 17.05 (3.36) | |
| **Maximum Power (2 Hours)** | | | | | |
| 148.14 (110.47) | 1900 | 8.16 (30.91) | 0.381 (0.232) | 18.14 (3.57) | Air temperature |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | |
| 142.69 (106.40) | 2200 | 8.37 (31.67) | 0.405 (0.246) | 17.05 (3.36) | 74°F (23°C) |
| 125.87 (93.86) | 2281 | 7.77 (29.42) | 0.427 (0.260) | 16.20 (3.19) | Relative humidity |
| 95.57 (71.28) | 2369 | 6.38 (24.16) | 0.462 (0.281) | 14.94 (2.94) | 36% |
| 64.20 (47.87) | 2351 | 5.04 (19.06) | 0.542 (0.330) | 12.75 (2.51) | Barometer |
| 32.40 (24.16) | 2355 | 3.78 (14.30) | 0.806 (0.490) | 8.58 (1.69) | 29.08" Hg (98.46 kPa) |
| 1.03 (0.77) | 2374 | 2.43 (9.20) | 16.310 (9.921) | 0.42 (0.08) | |

Maximum Torque 469 lb ft (636 Nm) at 1350 rpm
Maximum Torque Rise 37.5%
Torque Rise at 1000 engine rpm 30.7%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr/gal (kW h/L) | Temp °F (°C) cooling rad | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—9th (B3) Gear** | | | | | | | | | |
| 128.59 (95.89) | 6115 (27.20) | 7.89 (12.69) | 2201 | 2.81 | 0.447 (0.272) | 15.86 (3.05) | 187 (86) | 71 (22) | 28.87 (97.77) |
| **75% of Pull at Maximum Power—9th (B3) Gear** | | | | | | | | | |
| 101.56 (75.73) | 4589 (20.41) | 8.50 (13.36) | 2302 | 2.20 | 0.489 (0.298) | 14.12 (2.78) | 186 (86) | 77 (25) | 28.87 (97.77) |
| **50% of Pull at Maximum Power—9th (B3) Gear** | | | | | | | | | |
| 69.08 (51.51) | 3063 (13.62) | 8.46 (13.61) | 2351 | 1.51 | 0.566 (0.344) | 12.21 (2.41) | 183 (84) | 77 (25) | 28.87 (97.77) |
| **75% of Pull at Reduced Engine Speed—12th (B4) Gear** | | | | | | | | | |
| 101.29 (75.53) | 4583 (20.39) | 8.29 (13.34) | 1822 | 2.29 | 0.449 (0.273) | 15.58 (3.05) | 187 (86) | 78 (26) | 28.87 (97.77) |
| **50% of Pull at Reduced Engine Speed—12th (B4) Gear** | | | | | | | | | |
| 68.85 (51.33) | 3053 (13.58) | 8.46 (13.61) | 1848 | 1.51 | 0.499 (0.303) | 13.85 (2.73) | 181 (83) | 78 (26) | 28.87 (97.77) |

**Location of Test:** Center for Agricultural Equipment, Lincoln Nebraska 68583-0832, U.S.A.

**Dates of Test:** September-October, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60/60 F** *(15°/15°C)* 0.8300 **Fuel weight** 6.910 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 4.181 gal *(15.827 l)* **Drained from motor** 3.927 gal *(14.865 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Total time engine was operated** 23.0 hours

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6076T105286U* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 4.75" *(115.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 56.3 61.5 lb/hr *(25.6 27.9 kg/hr)* **High idle** 2350 2400 rpm **Turbo boost** nominal 14.17 psi *(97.717 kPa)* as measured 17.0 psi *(117 kPa)*

**CHASSIS: Type** standard **Serial No.** *RW4455HH002608U* **Tread width** rear 62.0" *(1574 mm)* to 116.0" *(2950 mm)* front 58.0" *(1470 mm)* to 82.0" *(2080 mm)* **Wheel base** 106.7" *(2710 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.16 *(3.47)* second 2.73 *(4.39)* third 3.56 *(5.74)* fourth 4.50 *(7.25)* fifth 4.96 *(7.99)* sixth 5.88 *(9.47)* seventh 6.27 *(10.10)* eighth 7.43 *(11.97)* ninth 8.20 *(13.20)* tenth 9.03 *(14.53)* eleventh 9.71 *(15.64)* twelfth 10.36 *(16.68)* thirteenth 11.41 *(18.37)* fourteenth 12.28 *(19.77)* fifteenth 14.91 *(24.01)* sixteenth 18.84 *(30.34)* reverse 3.45 *(5.56)*, 4.36 *(7.03)*, 7.94 *(12.78)*, 9.41 *(15.15)*, 10.03 *(16.15)*, 11.89 *(19.15)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm **Unladen tractor mass** 13315 lb *(6040 kg)*.

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr/gal (kW h/L) | Temp °F (°C) cooling rad | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **3rd (A3) Gear** | | | | | | | | | |
| 108.51 (80.91) | 12195 (54.24) | 5.34 (8.52) | 2286 | 8.85 | 0.491 (0.299) | 14.07 (2.77) | 185 (85) | 65 (18) | 28.88 (97.80) |
| **4th (A4) Gear** | | | | | | | | | |
| 124.19 (92.61) | 11298 (50.26) | 6.12 (9.85) | 2182 | 6.60 | 0.465 (0.283) | 14.87 (2.93) | 186 (86) | 65 (18) | 28.90 (97.87) |
| **5th (B1) Gear** | | | | | | | | | |
| 127.85 (95.34) | 10958 (48.74) | 6.38 (7.04) | 2100 | 6.52 | 0.449 (0.273) | 15.39 (3.03) | 187 (86) | 73 (23) | 28.89 (97.83) |
| **6th (C1) Gear** | | | | | | | | | |
| 132.40 (98.73) | 10441 (46.44) | 4.76 (7.65) | 1905 | 5.48 | 0.430 (0.262) | 16.07 (3.17) | 189 (87) | 72 (22) | 28.88 (97.80) |
| **7th (B2) Gear** | | | | | | | | | |
| 131.58 (97.97) | 9934 (42.83) | 5.11 (8.23) | 1904 | 4.66 | 0.435 (0.264) | 15.94 (3.14) | 189 (87) | 69 (21) | 28.86 (97.73) |
| **8th (C2) Gear** | | | | | | | | | |
| 130.97 (97.66) | 8058 (35.84) | 6.10 (9.81) | 1903 | 4.00 | 0.433 (0.264) | 15.95 (3.14) | 190 (88) | 73 (23) | 28.88 (97.80) |
| **9th (B3) Gear** | | | | | | | | | |
| 134.18 (100.06) | 7430 (33.05) | 6.77 (10.90) | 1903 | 3.41 | 0.425 (0.258) | 16.27 (3.20) | 189 (87) | 70 (21) | 28.87 (97.77) |
| **10th (D1) Gear** | | | | | | | | | |
| 132.85 (99.07) | 6684 (29.73) | 7.45 (12.00) | 1900 | 3.24 | 0.426 (0.259) | 16.22 (3.20) | 189 (87) | 74 (23) | 28.88 (97.83) |
| **11th (C3) Gear** | | | | | | | | | |
| 133.14 (99.28) | 6229 (27.71) | 8.02 (12.90) | 1893 | 2.98 | 0.425 (0.259) | 16.26 (3.20) | 190 (88) | 75 (24) | 28.88 (97.80) |

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Fuel Consumption Hp hr/gal (kW h/L) | Temp °F (°C) cooling rad | Temp °F (°C) Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **2nd (A2) Gear** | | | | | | | | | |
| 114.68 (85.51) | 17159 (76.33) | 2.51 (4.03) | 2263 | 9.74 | 0.492 (0.299) | 14.05 (2.77) | 184 (84) | 56 (13) | 29.27 (99.12) |
| **3rd (A3) Gear** | | | | | | | | | |
| 130.06 (96.99) | 15859 (70.46) | 3.08 (4.96) | 2049 | 6.36 | 0.453 (0.275) | 15.52 (3.06) | 186 (86) | 62 (17) | 29.28 (99.15) |
| **4th (A4) Gear** | | | | | | | | | |
| 131.29 (97.90) | 13021 (57.92) | 3.78 (6.09) | 1951 | 4.41 | 0.438 (0.266) | 15.78 (3.11) | 188 (86) | 62 (17) | 29.27 (99.12) |
| **5th (B1) Gear** | | | | | | | | | |
| 134.35 (100.18) | 12394 (55.13) | 4.07 (6.54) | 1901 | 4.08 | 0.424 (0.258) | 16.28 (3.21) | 188 (86) | 66 (19) | 29.26 (99.09) |
| **6th (C1) Gear** | | | | | | | | | |
| 135.77 (101.24) | 10473 (46.58) | 4.86 (7.82) | 1905 | 3.46 | 0.420 (0.255) | 16.47 (3.24) | 189 (87) | 67 (19) | 29.26 (99.09) |
| **7th (B2) Gear** | | | | | | | | | |
| 132.03 (98.45) | 9542 (42.44) | 5.19 (8.35) | 1899 | 3.06 | 0.431 (0.262) | 16.04 (3.16) | 189 (87) | 69 (21) | 29.24 (99.02) |
| **8th (C2) Gear** | | | | | | | | | |
| 132.74 (98.98) | 8037 (35.75) | 6.19 (9.97) | 1902 | 2.46 | 0.429 (0.261) | 16.09 (3.17) | 189 (87) | 69 (21) | 29.25 (99.05) |
| **9th (B3) Gear** | | | | | | | | | |
| 134.59 (100.36) | 7380 (32.83) | 6.84 (11.01) | 1899 | 2.29 | 0.422 (0.257) | 16.36 (3.22) | 189 (87) | 69 (21) | 29.22 (98.95) |
| **10th (D1) Gear** | | | | | | | | | |
| 134.86 (100.57) | 6695 (29.78) | 7.55 (12.16) | 1902 | 2.12 | 0.423 (0.257) | 16.34 (3.22) | 189 (87) | 70 (21) | 29.23 (98.92) |
| **11th (C3) Gear** | | | | | | | | | |
| 134.46 (100.27) | 6202 (27.59) | 8.13 (13.08) | 1898 | 1.94 | 0.424 (0.258) | 16.31 (3.21) | 190 (88) | 70 (21) | 29.20 (98.88) |

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 128° F (53° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 5 point lift capacity claim of 6550 lb *(2971 kg)* or 8470 lb *(3842 kg)* with lift assist cylinder. The pull in 3rd (A3) gear (unballasted tractor) was limited by tire tangential pull. The pull in 2nd (A2) gear (ballasted tractor) was limited by tractor stability. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1628**, Summary 066, December 22, 1989.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hr for gal (kg/kW.h) | (lb/hr for gal (kg/kW.h) | Temp °F (°C) cool. sig cored | Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2nd (A2) Gear | | | | | |
| 116.19 (86.57) | 17161 (76.34) | 2.54 (4.08) | 2265 | 8.61 | 0.486 (0.296) | 14.21 (2.80) | 185 (85) | 54 (12) | 29.27 (99.12) |
| | | | | 3rd (A3) Gear | | | | | |
| 127.33 (94.95) | 14235 (63.32) | 3.35 (5.40) | 2200 | 4.99 | 0.454 (0.276) | 15.21 (3.00) | 185 (85) | 60 (16) | 29.28 (99.15) |
| | | | | 4th (A4) Gear | | | | | |
| 129.20 (96.11) | 11008 (48.97) | 4.30 (6.92) | 2200 | 3.66 | 0.457 (0.278) | 15.13 (2.99) | 186 (86) | 62 (17) | 29.28 (99.15) |
| | | | | 5th (B1) Gear | | | | | |
| 128.78 (96.03) | 10157 (45.18) | 4.75 (7.65) | 2204 | 3.32 | 0.448 (0.272) | 15.44 (3.04) | 186 (85) | 64 (18) | 29.27 (99.12) |
| | | | | 6th (C1) Gear | | | | | |
| 128.84 (96.07) | 8547 (38.02) | 5.65 (9.10) | 2197 | 2.72 | 0.446 (0.271) | 15.49 (3.05) | 187 (86) | 67 (19) | 29.25 (99.05) |
| | | | | 7th (B2) Gear | | | | | |
| 126.74 (94.51) | 7853 (34.93) | 6.05 (9.74) | 2201 | 2.38 | 0.450 (0.274) | 15.35 (3.02) | 188 (86) | 67 (19) | 29.24 (99.02) |
| | | | | 8th (C2) Gear | | | | | |
| 125.90 (93.88) | 6550 (29.18) | 7.20 (11.58) | 2198 | 2.03 | 0.456 (0.277) | 15.17 (2.99) | 188 (87) | 69 (21) | 29.23 (98.98) |
| | | | | 9th (B3) Gear | | | | | |
| 124.52 (92.68) | 6060 (26.95) | 7.94 (12.78) | 2196 | 1.94 | 0.450 (0.273) | 15.37 (3.03) | 188 (87) | 69 (21) | 29.22 (98.95) |
| | | | | 10th (D1) Gear | | | | | |
| 127.62 (95.17) | 5450 (24.25) | 8.77 (14.11) | 2198 | 1.68 | 0.451 (0.274) | 15.33 (3.02) | 189 (87) | 69 (21) | 29.23 (98.95) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—5th (B1) Gear | 76.0 |
| Maximum sound level | 76.0 |
| Transport speed—no load—10th (D1) Gear | 76.0 |
| Bystander in 10th (D1) Gear | 85.0 |

## LUGGING ABILITY IN 6th (C1) GEAR

| Crankshaft Speed rpm | 2197 | 1984 | 1765 | 1540 | 1325 | 1106 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 8547 (38.02) | 9938 (44.21) | 10869 (48.79) | 11586 (51.53) | 11924 (53.04) | 11832 (52.63) |
| Increase in Pull % | 0 | 16 | 28 | 36 | 40 | 38 |
| Power—Hp (kW) | 128.84 (96.07) | 134.53 (100.32) | 131.74 (98.24) | 121.00 (90.23) | 106.67 (79.54) | 88.54 (66.02) |
| Speed—Mph (km/h) | 5.65 (9.10) | 5.08 (8.17) | 4.50 (7.25) | 3.92 (6.30) | 3.45 (5.40) | 2.81 (4.52) |
| Slip % | 2.72 | 3.06 | 3.57 | 3.74 | 3.91 | 3.91 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|---|---|
| Observed Maximum Pressure psi (bar) | 2560 (176) |
| Location | remote outlet |
| Hydraulic oil temperature °F(°C) | 143 (62) |
| Location | transmission sump |
| Category | II |
| Quick attach | No |

| | | | | | |
|---|---|---|---|---|---|
| Hitch point distance to ground level in (mm) | 8.7 (221) | 15.7 (399) | 22.4 (569) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kN) | 7550 (33.6) | 7482 (33.3) | 7199 (32.0) | 6526 (29.0) | 6175 (27.5) |
| | with lift assist cylinder | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 22.3 (566) | 30.4 (772) | 37.4 (950) |
| Lift force on frame lb (kN) | 9833 (43.7) | 9872 (43.9) | 9540 (42.4) | 8633 (38.4) | 8077 (35.9) |

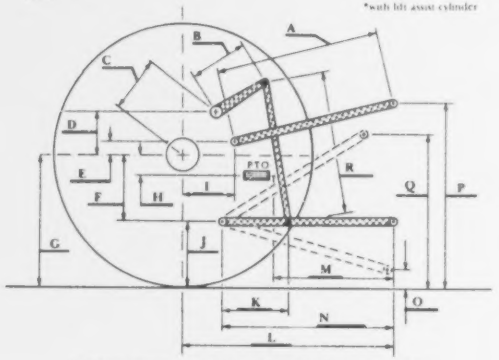
| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—No. size, ply & psi (kPa) | Four 18.4R42, **, 14 (95) | Two 18.4R42, **, 18 (125) |
| Ballast—Duals (total) | 1710 lb (776 kg) | None |
| —Cast Iron (total) | 2000 lb (907 kg) | None |
| Front Tires—No. size, ply & psi (kPa) | Two 11.00-16, 8, 40 (275) | Two 11.00-16, 8, 40 (275) |
| Ballast—Liquid (total) | None | None |
| —Tire Equip (total) | 185 lb (84 kg) | None |
| Height of Drawbar | 19 in (485 mm) | 25 in (635 mm) |
| Static Weight—Rear | 13390 lb (6073 kg) | 9475 lb (4298 kg) |
| —Front | 5820 lb (2733 kg) | 3840 lb (1742 kg) |
| —Total | 17210 lb (7806 kg) | 13315 lb (6040 kg) |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY II
Quick Attach None
Maximum Force Exerted Through Whole Range 5504 lbs (24.5 kN)
*7283 lbs (32.4 kN)

| | |
|---|---|
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2560 psi (176 Bar) |
| ii) Pump delivery rate at minimum pressure | 27.1 GPM (102.6 l/min) |
| iii) Pump delivery rate at maximum hydraulic power | 26.1 GPM (98.8 l/min) |
| Delivery pressure | 2100 psi (145 Bar) |
| Power | 52.0 Hp (23.8 kW) |

*with lift assist cylinder




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 26.6 | 676 |
| B | 11.5 | 292 |
| C | 11.3 | 287 |
| D | 10.9 | 278 |
| E | 5.6 | 143 |
| F | 10.2 | 259 |
| G | 35.1 | 892 |
| H | 6.5 | 165 |
| I | 14.3 | 362 |
| J | 24.9 | 631 |
| K | 23.1 | 587 |
| L | 41.6 | 1056 |
| M | 22.0 | 558 |
| N | 37.1 | 942 |
| O | 10.3 | 262 |
| P | 45.0 | 1143 |
| Q | 37.5 | 953 |
| R | 32.8 | 833 |

**John Deere 4455 Quadrange Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1629—SUMMARY 067
# JOHN DEERE 4555 QUADRANGE DIESEL
# 16 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| 68.83 | 22.06 | 11.24 | 2200 | 4.36 | 0.307 | 0.241 | 18 | 21 | 97.4 |

### MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—PTO speed—998 rpm**

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| 68.83 | 22.06 | 11.24 | 2200 | 4.36 | 0.307 | 0.241 | 18 | 21 | 97.4 |

**Maximum Power 2 Hours**

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| 62.53 | 19.90 | 11.30 | 2200 | 3.74 | 0.307 | 0.241 | 18 | 21 | 97.4 |

Maximum Power 2 Hours:

### VARYING POWER AND FUEL CONSUMPTION

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| 68.83 | 22.06 | 11.24 | 2200 | 4.36 | 0.307 | 0.241 | 18 | 21 | 97.4 |
| 67.20 | 22.64 | 10.70 | 2200 | 4.36 | 0.309 | 0.243 | 18 | 21 | 97.4 |
| 64.31 | 22.99 | 10.11 | 2200 | 4.43 | 0.312 | 0.245 | 18 | 21 | 97.4 |
| 59.77 | 23.11 | 9.31 | 2200 | 4.17 | 0.316 | 0.248 | 18 | 21 | 97.4 |
| 55.65 | 23.06 | 8.71 | 2200 | 3.72 | 0.320 | 0.251 | 18 | 21 | 97.4 |
| 51.29 | 22.66 | 8.12 | 2200 | 3.30 | 0.325 | 0.255 | 18 | 21 | 97.4 |

Maximum Torque 910 ft lb (1234 Nm) at 1400 rpm
Maximum Torque Rise 35%
Torque Rise at 1900 engine rpm 24%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 159.99 | 78.85 | 6.66 | 2200 | 4.36 | 0.444 | 15.55 | 183 | 70 | 28.90 |
| 106.19 | 44.05 | 9.72 | | | 0.320 | 1.06 | 65 | 21 | 97.87 |
| **75% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 119.99 | 59.14 | 6.99 | 2275 | 5.01 | 0.475 | 16.55 | 182 | 75 | 28.89 |
| 82.09 | 26.31 | 11.23 | | | 0.289 | 2.86 | 61 | 24 | 97.63 |
| **50% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 75.59 | 39.67 | 7.16 | 2311 | 2.15 | 0.542 | 12.75 | 180 | 75 | 28.89 |
| 56.22 | 17.55 | 12.51 | | | 0.330 | 2.51 | 52 | 24 | 97.83 |
| **75% of Pull at Reduced Engine Speed—10th (D1) Gear** | | | | | | | | | |
| 119.17 | 59.18 | 6.98 | 1782 | 5.01 | 0.442 | 15.65 | 184 | 75 | 28.89 |
| 82.15 | 26.32 | 11.24 | | | 0.269 | 3.48 | 64 | 24 | 97.83 |
| **50% of Pull at Reduced Engine Speed—10th (D1) Gear** | | | | | | | | | |
| 75.17 | 39.86 | 7.16 | 1811 | 2.15 | 0.485 | 14.51 | 179 | 75 | 28.89 |
| 56.05 | 17.51 | 12.51 | | | 0.296 | 2.82 | 61 | 24 | 97.83 |

**Location of Test**: Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test**: September–October, 1989.

**Manufacturer**: John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704.

**FUEL OIL and TIME**: **Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60/60 F** *(15/15 C)* 0.8500 **Fuel weight** 7.090 lbs/gal *(849 kg/l)*. **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 4.8 gal *(18.25 l)*. **Drained from motor** 4.5 gal *(17.0 l)*. **Transmission and hydraulic lubricant** John Deere HyGard fluid **Total time engine was operated** 253.0 hours.

**ENGINE**: **Make** John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG4076U100800* **Crankshaft** length/stroke **Rated engine speed** 2200 **Bore and stroke** as specified 4.56" × 4.75" *(115.8 mm × 120.7 mm)*. **Compression ratio** 16.9 to 1 **Displacement** 466 cu in *(7.614 l)*. **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS**: **Fuel rate** 39.9-65.4 lb/hr *(27.2-29.7 kg/hr)*. **High idle** 2550-2400 rpm **Turbo boost** nominal 15-16 psi *(103-124 kPa)* as measured 17.0 psi *(117 kPa)*.

**CHASSIS**: **Type** standard **Serial No.** *RW4555H001835* **Tread width** rear 62.0" *(1574 mm)* to 115.7" *(2938 mm)*; front 61.0" *(1550 mm)* to 85.0" *(2160 mm)*. **Wheel base** 118.5" *(3010 mm)*. **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.11 *(3.39)*; second 2.67 *(4.30)*; third 3.80 *(6.12)*; fourth 4.71 *(7.58)*; fifth 4.85 *(7.78)*; sixth 5.53 *(8.90)*; seventh 5.97 *(9.62)*; eighth 7.02 *(11.30)*; ninth 8.50 *(13.69)*; tenth 8.95 *(14.42)*; eleventh 9.99 *(16.08)*; twelfth 10.80 *(17.39)*; thirteenth 11.37 *(18.31)*; fourteenth 12.68 *(20.42)*; fifteenth 16.19 *(26.07)*; sixteenth 20.56 *(33.10)*; reverse 5.97 *(9.39)*; 5.04 *(8.11)*; 8.87 *(14.28)*; 10.42 *(16.78)*; 11.26 *(18.14)*; 15.23 *(21.31)*. **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 998 rpm at 2200 engine rpm **Unloaded tractor mass** 15840 lb *(7185 kg)*.

**REPAIRS AND ADJUSTMENTS**: No repairs or adjustments.

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| **3rd (A3) Gear** | | | | | | | | | |
| 115.40 | 130.55 | 3.32 | 2264 | 14.53 | 0.369 | 14.58 | 182 | 77 | 28.92 |
| 86.05 | 57.66 | 5.74 | | | 0.309 | 2.43 | 61 | 25 | 97.97 |
| **4th (B1) Gear** | | | | | | | | | |
| 136.10 | 117.19 | 4.36 | 2198 | 9.64 | 0.346 | 15.06 | 183 | 64 | 28.90 |
| 101.59 | 52.15 | 7.53 | | | 0.274 | 2.97 | 64 | 24 | 97.87 |
| **5th (A4) Gear** | | | | | | | | | |
| 137.05 | 119.54 | 4.30 | 2183 | 7.96 | 0.342 | 15.28 | 183 | 66 | 28.90 |
| 102.29 | 53.21 | 7.42 | | | 0.274 | 3.00 | 64 | 24 | 97.87 |
| **6th (A1) Gear** | | | | | | | | | |
| 136.57 | 120.77 | 4.06 | 2020 | 6.79 | 0.342 | 15.40 | 183 | 67 | 28.90 |
| 101.93 | 53.79 | 7.04 | | | 0.274 | 3.03 | 64 | 24 | 97.87 |
| **7th (B2) Gear** | | | | | | | | | |
| 136.01 | 120.66 | 4.06 | 1980 | 6.77 | 0.343 | 15.41 | 183 | 69 | 28.90 |
| 101.49 | 53.74 | 7.04 | | | 0.274 | 3.04 | 64 | 24 | 97.87 |
| **8th (A2) Gear** | | | | | | | | | |
| 141.04 | 91.61 | 5.86 | 1932 | 3.27 | 0.330 | 10.67 | 183 | 69 | 28.90 |
| 105.24 | 40.77 | 10.55 | | | 0.266 | 1.93 | 64 | 24 | 97.87 |
| **9th (D2) Gear** | | | | | | | | | |
| 141.15 | 90.85 | 5.86 | 1949 | 3.27 | 0.327 | 15.83 | 183 | 72 | 28.90 |
| 105.24 | 40.46 | 10.55 | | | 0.266 | 3.02 | 64 | 24 | 97.87 |
| **11th (C3) Gear** | | | | | | | | | |
| 141.17 | 92.35 | 8.39 | 1949 | 3.27 | 0.327 | 15.88 | 183 | 72 | 28.90 |
| 105.27 | 41.14 | 15.06 | | | 0.266 | 3.03 | 64 | 24 | 97.87 |

## DRAWBAR PERFORMANCE AT 1950 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power kW | Drawbar pull kN | Speed km/h | Crank shaft speed rpm | Slip % | Fuel Consumption kg/kWh | Fuel Consumption kg/kg | Temp. °C | Air °C | Barom. kPa |
|---|---|---|---|---|---|---|---|---|---|
| **1st (A1) Gear** | | | | | | | | | |
| 89.02 | 177.84 | 1.68 | 2264 | 14.70 | 0.343 | 12.77 | 180 | 66 | 29.08 |
| 66.38 | 76.00 | 3.02 | | | 0.329 | 2.52 | 62 | 19 | 98.65 |
| **2nd (A2) Gear** | | | | | | | | | |
| 110.66 | 176.81 | 2.35 | 2269 | 14.17 | 0.310 | 13.36 | 181 | 55 | 29.08 |
| 82.52 | 75.65 | 4.28 | | | 0.310 | 2.63 | 63 | 22 | 98.65 |
| **3rd (A3) Gear** | | | | | | | | | |
| 140.21 | 150.08 | 5.35 | 2077 | 6.59 | 0.445 | 13.54 | 185 | 60 | 29.08 |
| 104.56 | 70.52 | 9.35 | | | 0.270 | 1.06 | 65 | 16 | 98.65 |
| **4th (B1) Gear** | | | | | | | | | |
| 142.79 | 154.41 | 5.08 | 1979 | 5.14 | 0.433 | 15.95 | 187 | 64 | 29.08 |
| 106.48 | 159.79 | 16.61 | | | 0.263 | 3.16 | 66 | 18 | 98.65 |
| **5th (A4) Gear** | | | | | | | | | |
| 144.97 | 154.40 | 4.05 | 1951 | 5.14 | 0.426 | 16.23 | 187 | 65 | 29.08 |
| 107.66 | 159.78 | 6.48 | | | 0.259 | 3.20 | 66 | 18 | 98.65 |
| **6th (A1) Gear** | | | | | | | | | |
| 142.50 | 154.01 | 4.06 | 1953 | 4.23 | 0.434 | 15.95 | 187 | 66 | 29.09 |
| 106.18 | 50.97 | 6.50 | | | 0.264 | 3.14 | 66 | 19 | 98.51 |
| **7th (B2) Gear** | | | | | | | | | |
| 146.25 | 108.97 | 5.05 | 1967 | 4.06 | 0.422 | 16.39 | 188 | 67 | 29.09 |
| 109.08 | 108.67 | 8.10 | | | 0.256 | 3.23 | 66 | 19 | 98.51 |
| **8th (C2) Gear** | | | | | | | | | |
| 145.89 | 91.59 | 5.97 | 1955 | 5.39 | 0.419 | 16.48 | 188 | 71 | 29.09 |
| 108.79 | 60.74 | 9.61 | | | 0.255 | 3.23 | 67 | 22 | 98.51 |
| **9th (B3) Gear** | | | | | | | | | |
| 142.95 | 79.70 | 7.27 | 1949 | 2.70 | 0.430 | 16.07 | 189 | 75 | 29.07 |
| 106.60 | 52.78 | 11.71 | | | 0.261 | 3.17 | 67 | 23 | 98.44 |
| **10th (D1) Gear** | | | | | | | | | |
| 141.94 | 69.65 | 7.88 | 1948 | 2.35 | 0.431 | 16.05 | 189 | 74 | 29.06 |
| 105.85 | 50.89 | 12.74 | | | 0.262 | 3.16 | 67 | 23 | 98.41 |
| **11th (C3) Gear** | | | | | | | | | |
| 142.59 | 62.19 | 8.59 | 1950 | 2.27 | 0.433 | 15.96 | 189 | 74 | 29.05 |
| 106.18 | 45.56 | 13.82 | | | 0.263 | 3.16 | 67 | 23 | 98.37 |

**REMARKS**: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125° F (52° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 8870 lb *(4024 kg)* or 9710 lb *(4404 kg)* with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1629**, Summary 067, December 22, 1989.

LOUIS J. LEVITT, JR.
Engineer in Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Clutch slippage % | Slip % | Fuel Consumption Hp hr/gal (kg/kW hr) | Tires, F/R size | Air in | Ballast lbs (kg) |
|---|---|---|---|---|---|---|---|---|
| | | | | 2nd (A2) Gear | | | | |
| 110.4 (82.3) | 15774 (70.2) | 2.93 (4.72) | 2268 (1028) | 4.7% | 0.511 (0.311) | 13.6-38 / 18.4-38 | 10 (69) | 29,000 (13154) |
| 92.34 (68.9) | 79.00 (35.1) | 2.78 (4.47) | | | 0.560 (0.341) | | 40 (276) | 25,000 (11340) |
| | | | | 3rd (A3) Gear | | | | |
| 158.44 (118.2) | 14647 (65.2) | 5.16 (8.30) | 2198 (997) | 3.5% | 0.440 (0.268) | 13.6-38 / 18.4-38 | 14.5 (100) | 29,000 (13154) |
| 135.61 (101.1) | 12540 (55.8) | 4.92 (7.92) | | | 0.451 (0.275) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 4th (B1) Gear | | | | |
| 188.83 (140.8) | 11720 (52.1) | 6.47 (10.41) | 2020 (916) | 4.3% | 0.444 (0.271) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 161.27 (120.3) | 10032 (44.6) | 6.17 (9.93) | | | 0.456 (0.278) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 5th (B1) Gear | | | | |
| 161.72 (120.6) | 8456 (37.6) | 8.08 (13.00) | 2220 (1007) | 4.2% | 0.440 (0.268) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 138.34 (103.2) | 7233 (32.2) | 7.92 (12.75) | | | 0.451 (0.275) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 6th (B1) Gear | | | | |
| 159.46 (118.9) | 6932 (30.8) | 9.28 (14.93) | 2200 (998) | 3.5% | 0.443 (0.270) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 136.17 (101.6) | 5921 (26.3) | 9.09 (14.63) | | | 0.454 (0.276) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 7th (B2) Gear | | | | |
| 141.77 (105.7) | 5291 (23.5) | 10.72 (17.25) | 2190 (993) | 3.7% | 0.443 (0.270) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 120.72 (90.0) | 4505 (20.0) | 10.50 (16.90) | | | 0.454 (0.276) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 8th (B2) Gear | | | | |
| 141.43 (105.5) | 4245 (18.9) | 11.76 (18.92) | 2200 (998) | 3.7% | 0.439 (0.267) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 119.69 (89.2) | 3593 (16.0) | 11.53 (18.55) | | | 0.450 (0.274) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |
| | | | | 9th (B3) Gear | | | | |
| 158.32 (118.1) | 3076 (13.7) | 14.23 (22.90) | 2198 (997) | 2.2% | 0.449 (0.273) | 13.6-38 / 18.4-38 | 18.5 (128) | 29,000 (13154) |
| 135.29 (100.9) | 2630 (11.7) | 13.95 (22.45) | | | 0.460 (0.280) | 13.6-38 / 18.4-38 | 40 (276) | 25,000 (11340) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—6th (B1) Gear | 76.0 |
| Maximum sound level | 76.0 |
| Transport speed—no load—16th (D4) Gear | 77.0 |
| Bystander at 16th (D4) Gear | 80.0 |

## LUGGING ABILITY IN 7th (B2) GEAR

| Crankshaft Speed rpm | 2200 | 2100 | 1954 | 1840 | 1725 | 1600 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 8291 (36.88) | 10682 (47.52) | 11760 (52.31) | 12708 (56.53) | 12640 (56.23) | 12244 (54.46) |
| Increase in Pull % | 0 | 15 | 27 | 37 | 36 | 32 |
| Power—Hp (kW) | 141.77 (105.72) | 143.91 (106.80) | 142.40 (106.18) | 133.64 (99.66) | 114.29 (85.23) | 92.24 (68.78) |
| Speed—Mph (km/h) | 3.72 (6.21) | 3.72 (6.24) | 4.34 (7.31) | 3.94 (6.35) | 3.59 (5.46) | 2.82 (4.55) |
| Slip % | 3.39 | 3.89 | 4.56 | 4.89 | 4.75 | 4.74 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | | | | | | |
|---|---|---|---|---|---|---|
| Observed Maximum Pressure psi (bar) | | | | | 2360 (178) | |
| Location | | | | | remote outlet | |
| Hydraulic oil temperature °F (°C) | | | | | 138 (59) | |
| Location | | | | | transmission sump | |
| Category | | | | | III | |
| Quick attach | | | | | Yes | |
| Hitch point distance to ground level in. (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 35.0 (838) | 40.0 (1016) | |
| Lift force on frame lb. (kN) | 8700 (38.7) | 9228 (41.0) | 9432 (42.0) | 9944 (44.2) | 8285 (36.8) | |
| with 1.44 mm. lift assist cylinder | | | | | | |
| Hitch point distance to ground level in. (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 35.0 (838) | 40.0 (1016) | |
| Lift force on frame lb. (kN) | 9900 (44.0) | 10370 (46.1) | 10854 (48.3) | 10224 (45.5) | 9411 (41.9) | |
| with 1.55 mm. lift assist cylinder | | | | | | |
| Hitch point distance to ground level in. (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 35.0 (838) | 40.0 (1016) | |
| Lift force on frame lb. (kN) | 10918 (48.6) | 11454 (50.9) | 11576 (51.5) | 10797 (47.8) | 10041 (44.7) | |

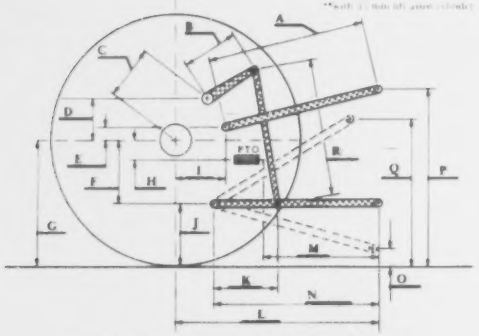
| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—Size (psi & psi (kPa)) | 18.4-38 (12 psi (83 kPa)) | 18.4-38 (12 psi (83 kPa)) |
| Ballast—Dual (kg) | 3750 lbs (1701 kg) | None |
| Cast front (kg) | 1000 lbs (454 kg) | None |
| Front Tires—Size (psi & psi (kPa)) | 13.6-38 (16 psi (110 kPa)) | 13.6-38 (16 psi (110 kPa)) |
| Ballast—Liquid (kg) | None | None |
| Iron (kg) | 1500 lbs (680 kg) | None |
| Height of Drawbar | 18.5 in. (470 mm) | 18.5 in. (470 mm) |
| Static Weight—Rear | 19400 lbs (8799 kg) | 11250 lbs (5103 kg) |
| Front | 8950 lbs (4060 kg) | 4500 lbs (2041 kg) |
| Total | 28350 lbs (12859 kg) | 15750 lbs (7144 kg) |

## THREE POINT HITCH PERFORMANCE
### (OECD Static Test)

CATEGORY III
Quick Attach Yes
Maximum Force Exerted Through Whole Range

| | | |
|---|---|---|
| | 9821 lbs | (25.9 kN) |
| | 7960.0 lbs | (26.4 kN) |
| | 6670.0 lbs | (11.4 kN) |
| a. Opening pressure of relief valve | NA | |
| Sustained pressure with pump stalled | 2360 psi | (178 Bar) |
| a. Pump delivers rate at minimum pressure | 33.8 GPM | (115 l/min) |
| a. Pump delivers rate at maximum hydraulic power | 34.9 GPM | (128 l/min) |
| Delivers pressure | 2360 psi | (121 Bar) |
| Power | 93.0 Hp | (25.8 kW) |

*with 44 mm lift assist cylinder
**with 55 mm lift assist cylinder




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 28.1 | 714 |
| B | 18.4 | 468 |
| C | 12.0 | 305 |
| D | 12.9 | 327 |
| E | 6.8 | 172 |
| F | 13.0 | 330 |
| G | 35.1 | 892 |
| H | 7.0 | 177 |
| I | 13.1 | 334 |
| J | 22.1 | 562 |
| K | 28.2 | 716 |
| L | 44.5 | 1129 |
| L | 49.5 | 1251 |
| M | 22.5 | 565 |
| N | 38.1 | 968 |
| O | 9.1 | 231 |
| P | 44.1 | 1121 |
| Q | 41.5 | 1053 |
| R | 17.5 | 446 |

L to end of Quick Attach

**John Deere 4555 Quadrange Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1630—SUMMARY 068
# JOHN DEERE 4755 QUADRANGE DIESEL
# 16 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crankshaft speed rpm | Fuel flow lb/hr (kg/h) | Fuel rate lb/hp-hr (kg/kW-h) | Atmospheric Conditions |
|---|---|---|---|---|
| **Maximum Power and Fuel Consumption** | | | | |
| **Rated Engine Speed—PTO speed—998 rpm:** | | | | |
| 177.11 (132.07) | 2200 | 9.75 (4.42) | 0.579 (0.352) | 18.21 (7.96) |
| **Maximum Power (2 Hours):** | | | | |
| 180.35 (134.49) | 2068 | 9.53 (4.32) | 0.566 (0.344) | 18.88 (8.25) |
| **Varying Power and Fuel Consumption** | | | | |
| 127.11 (132.07) | 2200 | 9.75 (4.42) | 0.579 (0.352) | 18.21 (7.96) |
| 154.51 (115.07) | 2253 | 8.77 (3.98) | 0.395 (0.240) | 17.60 (7.98) |
| 116.72 (87.03) | 2281 | 7.23 (3.28) | 0.429 (0.261) | 16.10 (7.30) |
| 79.52 (59.15) | 2517 | 5.51 (2.50) | 0.480 (0.292) | 14.59 (6.62) |
| 40.11 (29.91) | 2551 | 3.99 (1.81) | 0.498 (0.303) | 10.04 (4.55) |
| 0.77 (0.58) | 2585 | 2.39 (1.08) | 21.356 (12.990) | 0.52 (0.24) |

Maximum Torque 575 lb-ft (779 Nm) at 1400 rpm
Maximum Torque Rise 30.9%
Torque Rise at 1000 engine rpm 14%

Air temperature °F (°C)
Relative Humidity %
Barometer in Hg (kPa)

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/l) | Temp. °F (°C) Coolant | Temp. °F (°C) Air | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 156.97 (117.05) | 8441 (37.55) | 6.97 (11.22) | 2196 | 5.44 | 0.422 (0.257) | 16.57 (3.22) | 186 (86) | 58 (14) | 29.27 (99.12) |
| **75% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 122.77 (91.55) | 6525 (29.13) | 7.28 (11.72) | 2296 | 2.28 | 0.448 (0.272) | 15.43 (3.00) | 186 (86) | 60 (16) | 29.21 (98.92) |
| **50% of Pull at Maximum Power—8th (C2) Gear** | | | | | | | | | |
| 85.99 (62.65) | 4225 (18.74) | 7.46 (12.00) | 2304 | 1.47 | 0.516 (0.314) | 13.40 (2.64) | 186 (86) | 59 (15) | 29.21 (98.92) |
| **75% of Pull at Reduced Engine Speed—10th (D1) Gear** | | | | | | | | | |
| 123.00 (91.72) | 6552 (28.17) | 7.28 (11.72) | 1777 | 2.19 | 0.425 (0.259) | 16.23 (3.20) | 186 (85) | 59 (15) | 29.20 (98.88) |
| **50% of Pull at Reduced Engine Speed—10th (D1) Gear** | | | | | | | | | |
| 84.10 (62.71) | 4252 (18.82) | 7.45 (11.99) | 1804 | 1.47 | 0.465 (0.282) | 14.92 (2.94) | 180 (82) | 59 (15) | 29.20 (98.85) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** September-October, 1989.

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704.

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60° 60°F** *(15°/15°C)* 0.8500 **Fuel weight** 6.910 lbs/gal *(0.828 kg/l)*. **Oil SAE** 15W40 **API service classification** CD/SD **To motor** 4.344 gal *(16.442 l)* **Drained from motor** 4.101 gal *(15.526 l)* **Transmission and hydraulic lubricant** John Deere HyGard fluid **Total time engine was operated** 190.0 hours.

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** *RG6076A109849* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.36" × 4.75" *(110.8 mm × 120.7 mm)* **Compression ratio** 16.0 to 1 **Displacement** 466 cu in *(7634 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element and prefilter **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 66.6-72.8 lb/hr *(30.2-33.0 kg/hr)* **High idle** 2550-2400 rpm **Turbo boost** nominal 16-19 psi *(110-131 kPa)* as measured 17.0 psi *(117 kPa)*.

**CHASSIS: Type** standard **Serial No.** *RW4755H001852* **Tread width** rear 64.6" *(1642 mm)* to 115.7" *(2938 mm)* front 61.0" *(1550 mm)* to 85.0" *(2160 mm)* **Wheel base** 118.5" *(3010 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.17 *(3.49)* second 2.75 *(4.43)* third 3.91 *(6.30)* fourth 4.84 *(7.80)* fifth 4.97 *(8.00)* sixth 5.69 *(9.16)* seventh 6.15 *(9.90)* eighth 7.22 *(11.63)* ninth 8.75 *(14.09)* tenth 9.22 *(14.84)* eleventh 10.28 *(16.55)* twelfth 11.11 *(17.89)* thirteenth 11.71 *(18.85)* fourteenth 13.05 *(21.01)* fifteenth 16.66 *(26.83)* sixteenth 21.16 *(34.07)* reverse 4.09 *(6.58)*, 5.19 *(8.35)*, 9.13 *(14.70)*, 10.72 *(17.27)*, 11.59 *(18.67)*, 13.62 *(21.93)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 998 rpm at 2200 engine rpm **Unladen tractor mass** 16030 lb *(7271 kg)*.

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

## DRAWBAR PERFORMANCE AT 2090 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/l) | Temp. °F (°C) Coolant | Temp. °F (°C) Air | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| 3rd (A3) Gear | | | | | | | | | |
| 127.57 (95.13) | 13925 (61.95) | 3.43 (5.52) | 2240 | 14.24 | 0.491 (0.298) | 14.09 (2.77) | 182 (83) | 52 (11) | 29.27 (99.12) |
| 4th (B1) Gear | | | | | | | | | |
| 155.68 (116.60) | 13005 (57.85) | 4.43 (7.13) | 2130 | 6.31 | 0.453 (0.275) | 13.67 (2.69) | 183 (84) | 54 (12) | 29.27 (99.12) |
| 5th (A4) Gear | | | | | | | | | |
| 155.19 (114.23) | 12851 (57.16) | 4.47 (7.19) | 2134 | 7.31 | 0.433 (0.263) | 13.90 (2.73) | 183 (84) | 54 (12) | 29.27 (99.12) |
| 6th (B2) Gear | | | | | | | | | |
| 156.06 (116.32) | 11485 (51.09) | 5.10 (8.20) | 2079 | 7.34 | 0.422 (0.256) | 16.36 (3.22) | 186 (86) | 59 (15) | 29.27 (99.12) |
| 7th (B2) Gear | | | | | | | | | |
| 156.94 (116.99) | 11172 (49.70) | 5.33 (8.58) | 2068 | 4.92 | 0.433 (0.263) | 16.66 (3.28) | 186 (86) | 59 (15) | 29.27 (99.12) |
| 8th (C1) Gear | | | | | | | | | |
| 160.43 (119.63) | 9340 (42.43) | 6.31 (10.15) | 1998 | 5.67 | 0.404 (0.245) | 16.40 (3.23) | 188 (87) | 57 (14) | 29.27 (99.12) |
| 9th (B3) Gear | | | | | | | | | |
| 158.10 (117.90) | 7658 (34.06) | 7.74 (12.46) | 2065 | 5.09 | 0.416 (0.253) | 16.60 (3.27) | 188 (87) | 59 (15) | 29.27 (99.12) |
| 10th (D1) Gear | | | | | | | | | |
| 156.74 (116.88) | 7205 (32.06) | 8.15 (13.12) | 1999 | 2.73 | 0.425 (0.259) | 16.34 (3.22) | 188 (87) | 61 (16) | 29.27 (99.12) |

## DRAWBAR PERFORMANCE AT 2000 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/l) | Temp. °F (°C) Coolant | Temp. °F (°C) Air | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| 2nd (A2) Gear | | | | | | | | | |
| 151.94 (90.19) | 19557 (86.99) | 2.53 (4.07) | 2248 | 10.25 | 0.466 (0.285) | 14.77 (2.91) | 185 (85) | 64 (18) | 28.88 (97.80) |
| 3rd (A3) Gear | | | | | | | | | |
| 152.56 (113.76) | 15860 (70.55) | 3.61 (5.81) | 2126 | 4.92 | 0.438 (0.267) | 15.77 (3.11) | 187 (86) | 72 (22) | 28.87 (97.77) |
| 4th (B1) Gear | | | | | | | | | |
| 154.99 (115.57) | 15261 (67.89) | 4.38 (7.05) | 2062 | 5.71 | 0.429 (0.262) | 16.13 (3.18) | 187 (86) | 75 (24) | 28.86 (97.73) |
| 5th (A4) Gear | | | | | | | | | |
| 157.69 (117.59) | 15192 (67.58) | 4.48 (7.21) | 2955 | 5.62 | 0.422 (0.257) | 16.38 (3.23) | 188 (86) | 74 (23) | 28.86 (97.73) |
| 6th (C1) Gear | | | | | | | | | |
| 156.02 (116.36) | 11652 (51.83) | 5.02 (8.08) | 2001 | 5.27 | 0.425 (0.259) | 16.33 (3.22) | 188 (86) | 75 (24) | 28.85 (97.70) |
| 7th (B2) Gear | | | | | | | | | |
| 159.57 (118.86) | 10996 (48.91) | 5.44 (8.75) | 1999 | 2.91 | 0.412 (0.251) | 16.76 (3.30) | 189 (87) | 75 (24) | 28.85 (97.70) |
| 8th (C2) Gear | | | | | | | | | |
| 158.28 (118.03) | 9229 (41.05) | 6.45 (10.35) | 2002 | 2.56 | 0.416 (0.253) | 16.60 (3.27) | 188 (86) | 76 (24) | 28.84 (97.66) |
| 9th (B3) Gear | | | | | | | | | |
| 155.16 (115.70) | 7452 (33.06) | 7.85 (12.60) | 2002 | 1.92 | 0.424 (0.258) | 16.31 (3.21) | 189 (87) | 77 (25) | 28.85 (97.63) |
| 10th (D1) Gear | | | | | | | | | |
| 154.01 (114.84) | 7000 (31.14) | 8.25 (13.28) | 2000 | 1.83 | 0.427 (0.260) | 16.18 (3.18) | 188 (87) | 77 (25) | 28.82 (97.60) |

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 128° F (53° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 5 point lift capacity claim of 8870 lb *(4023 kg)* or 9710 lb *(4404 kg)* with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1630**, Summary 068, December 22, 1989.

LOUIS T. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFEMAN
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE AT 2200 RPM
### MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp hr (kg/kW h) | Hp hr per gal (kW h/L) | Temp °F (°C) Air | Temp °F (°C) Engine coolant | Barometric inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2nd (A2) Gear | | | | | |
| 150.62 (97.41) | 19898 (88.51) | 2.46 (3.96) | 2248 | 12.70 | 0.477 (0.290) | 14.50 (2.86) | 185 (84) | 60 (16) | 28.88 (97.80) |
| | | | | 3rd (A3) Gear | | | | | |
| 152.18 (113.48) | 15217 (67.69) | 3.73 (6.00) | 2201 | 4.58 | 0.441 (0.268) | 15.66 (3.09) | 186 (86) | 72 (22) | 28.87 (97.77) |
| | | | | 4th (B1) Gear | | | | | |
| 152.82 (113.96) | 12196 (54.25) | 4.70 (7.56) | 2201 | 3.27 | 0.437 (0.266) | 15.82 (3.12) | 186 (86) | 72 (22) | 28.87 (97.77) |
| | | | | 5th (A4) Gear | | | | | |
| 154.97 (115.56) | 12057 (53.63) | 4.82 (7.76) | 2200 | 3.27 | 0.452 (0.261) | 16.00 (3.15) | 187 (86) | 74 (23) | 28.86 (97.74) |
| | | | | 6th (C1) Gear | | | | | |
| 154.15 (114.95) | 10444 (46.45) | 5.54 (8.91) | 2197 | 2.82 | 0.436 (0.265) | 15.85 (3.12) | 188 (86) | 74 (23) | 28.85 (97.70) |
| | | | | 7th (B2) Gear | | | | | |
| 155.88 (116.24) | 9750 (43.28) | 6.01 (9.67) | 2201 | 2.75 | 0.429 (0.261) | 16.09 (3.17) | 187 (86) | 75 (24) | 28.84 (97.66) |
| | | | | 8th (C2) Gear | | | | | |
| 155.95 (116.29) | 8259 (36.74) | 7.08 (11.40) | 2198 | 2.28 | 0.429 (0.261) | 16.10 (3.17) | 187 (86) | 75 (24) | 28.84 (97.66) |
| | | | | 9th (B3) Gear | | | | | |
| 151.98 (113.33) | 6606 (29.38) | 8.63 (13.89) | 2202 | 1.85 | 0.441 (0.268) | 15.68 (3.09) | 187 (86) | 77 (25) | 28.85 (97.63) |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—4th (B1) Gear | 76.0 |
| Maximum sound level | 76.0 |
| Transport speed—no load—16th (D4) Gear | 76.5 |
| Bystander in 16th (D4) Gear | 86.5 |

## LUGGING ABILITY IN 7th (B2) GEAR

| Crankshaft Speed rpm | 2201 | 1980 | 1762 | 1539 | 1320 | 1101 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 9750 (43.28) | 11055 (49.18) | 12225 (54.38) | 13051 (58.05) | 13300 (59.16) | 12252 (54.50) |
| Increase in Pull % | 0 | 14 | 26 | 34 | 37 | 26 |
| Power—Hp (kW) | 155.88 (116.24) | 158.75 (118.38) | 155.59 (116.03) | 144.61 (107.83) | 126.21 (94.11) | 97.32 (72.57) |
| Speed—Mph (km/h) | 6.01 (9.67) | 5.38 (8.67) | 4.72 (7.68) | 4.16 (6.69) | 3.56 (5.73) | 2.98 (4.79) |
| Slip % | 2.75 | 3.09 | 3.27 | 3.80 | 3.80 | 5.43 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|---|---|
| Observed Maximum Pressure psi (bar) | 2560 (177) |
| Location | remote outlet |
| Hydraulic oil temperature °F(°C) | 151 (55) |
| Location | transmission sump |
| Category | III |
| Quick attach | Yes |

| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
|---|---|---|---|---|---|
| Lift force on frame lb (kN) | 8700 (38.7) | 9228 (41.0) | 9432 (42.0) | 8944 (39.8) | 8283 (36.8) |
| with 1-44 mm lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
| Lift force on frame lb (kN) | 9860 (43.9) | 10570 (47.0) | 10854 (48.3) | 10224 (45.5) | 9411 (41.9) |
| with 1-55 mm lift assist cylinder | | | | | |
| Hitch point distance to ground level in (mm) | 9.0 (229) | 16.0 (406) | 25.0 (635) | 33.0 (838) | 40.0 (1016) |
| Lift force on frame lb (kN) | 10518 (46.8) | 11434 (50.9) | 11576 (51.5) | 10757 (47.8) | 10041 (44.7) |

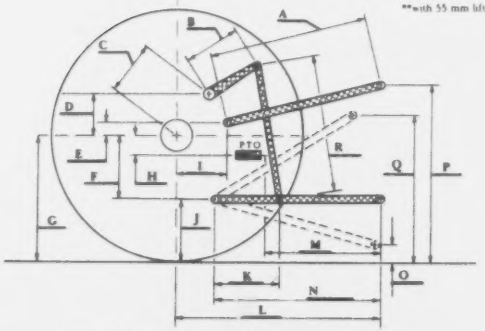
| TIRES AND WEIGHT | With Ballast | Without Ballast |
|---|---|---|
| Rear Tires—No., size, psi (kPa) | Four 20.8R42, **, 14 (95) | Two 20.8R42, **, 18 (125) |
| Ballast—Drain (total) | 1950 lb (885 kg) | None |
| —Cast Iron (total) | 2000 lb (907 kg) | None |
| Front Tires—No., size, psi (kPa) | Two 14L-16.1, 10, 44 (303) | Two 14L-16.1, 10, 44 (303) |
| Ballast—Liquid (total) | None | None |
| —Tire Equip. (total) | 340 lb (154 kg) | None |
| Height of Drawbar | 27.5 in. (570 mm) | 25.5 in. (650 mm) |
| Static Weight—Rear | 15450 lb (7008 kg) | 11165 lb (5064 kg) |
| —Front | 4870 lb (2209 kg) | 4865 lb (2207 kg) |
| —Total | 20320 lb (9217 kg) | 16030 lb (7271 kg) |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY III
Quick Attach Yes

| | |
|---|---|
| Maximum Force Exerted Through Whole Range | 5821 lbs (25.9 kN) |
| | *6614 lbs (29.4 kN) |
| | **7057 lbs (31.4 kN) |
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2560 psi (177 Bar) |
| ii) Pump delivers rate at minimum pressure | 35.2 GPM (133.2 l/min) |
| iii) Pump delivers rate at maximum hydraulic power | 35.7 GPM (127.6 l/min) |
| Delivery pressure | 1750 psi (121 Bar) |
| Power | 54.4 Hp (25.7 kW) |

*with 44 mm lift assist cylinder
**with 55 mm lift assist cylinder




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 28.1 | 714 |
| B | 18.4 | 468 |
| C | 12.9 | 327 |
| D | 12.9 | 327 |
| E | 6.8 | 172 |
| F | 13.0 | 330 |
| G | 36.1 | 918 |
| H | 7.0 | 177 |
| I | 15.1 | 384 |
| J | 23.1 | 588 |
| K | 28.2 | 716 |
| L | 44.3 | 1124 |
| L | 49.3 | 1251 |
| M | 22.3 | 565 |
| N | 38.1 | 968 |
| O | 10.1 | 257 |
| P | 45.1 | 1146 |
| Q | 42.3 | 1080 |
| R | 37.3 | 946 |

L to end of Quick Attach

**John Deere 4755 Quadrange Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1631—SUMMARY 069
# JOHN DEERE 8760 POWERSHIFT DIESEL
# 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant | Temp °F (°C) air | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | | |
| **Rated Engine Speed—(PTO speed—1109 rpm):** | | | | | | | | | |
| 260.04 (193.9) | 11040 (49.11) | 6.33 (10.19) | 2200 | 3.33 | 0.455 (0.277) | 13.190 (3.486) | | | |
| **Maximum Power (2 Hours):** | | | | | | | | | |
| 276.09 (205.8) | 17349 (77.18) | 15.62 (25.14) | 2100 | 3.77 (3.77) | | | | | |
| **Standard Power Take-off Speed (1003 rpm):** | | | | | | | | | |
| 276.09 (205.8) | 18945 (84.27) | 16.17 (26.02) | 2143 (2143) | 3.05 (3.05) | | | | | |

## VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|---|---|---|---|---|
| 260.04 (193.9) | 21000 (93.41) | 16.53 (26.60) | 2433 (2433) | 3.00 (3.00) | Air temperature |
| 229.20 (170.9) | 25372 (112.86) | 14.80 (23.81) | 2446 (2446) | 3.33 (3.33) | 75°F (24°C) |
| 174.37 (130.0) | 2202 (9.79) | 12.07 (19.42) | 2478 (2478) | 3.44 (3.44) | Relative humidity |
| 117.72 (87.8) | 2252 (10.02) | 8.46 (13.61) | 2530 (2530) | 3.34 (3.34) | 49% |
| 59.70 (44.5) | 2263 (10.07) | 4.33 (6.97) | 2504 (2504) | 3.34 (3.34) | Barometer |
| 0.86 (0.64) | 2289 (10.18) | 0.16 (0.26) | 2330 (2330) | 3.20 (3.20) | 29.14 Hg (98.69 kPa) |

Maximum Torque (Lb-ft) (kg-m): 1221.3 (168.9) at 1391 rpm
Maximum Torque Rise: 94.5%
Torque Rise at 1900 engine rpm: 12%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant | Temp °F (°C) air | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—7th Gear** | | | | | | | | | |
| 259.49 (178.59) | 15046 (66.93) | 6.88 (11.08) | 2096 | 1.44 | 0.474 (0.288) | 14.59 (2.87) | 189 (87) | 60 (16) | 29.00 (98.21) |
| **75% of Pull at Maximum Power—7th Gear** | | | | | | | | | |
| 187.68 (139.95) | 9791 (43.55) | 7.19 (11.57) | 2184 (2184) | 1.21 (1.21) | 0.502 (0.305) | 15.78 (2.71) | 185 (85) | 58 (14) | 29.07 (98.44) |
| **50% of Pull at Maximum Power—7th Gear** | | | | | | | | | |
| 127.34 (94.95) | 6521 (29.00) | 7.52 (12.10) | 2218 (2218) | 0.85 (0.85) | 0.527 (0.320) | 11.98 (2.16) | 180 (82) | 59 (15) | 29.08 (98.48) |
| **75% of Pull at Reduced Engine Speed—9th Gear** | | | | | | | | | |
| 188.51 (140.62) | 9798 (43.58) | 7.21 (11.60) | 1668 (1668) | 1.21 (1.21) | 0.459 (0.279) | 15.76 (3.10) | 185 (85) | 58 (14) | 29.07 (98.44) |
| **50% of Pull at Reduced Engine Speed—9th Gear** | | | | | | | | | |
| 127.45 (95.04) | 6551 (29.05) | 7.52 (12.10) | 1668 | 0.94 | 0.488 (0.297) | 14.16 (2.79) | 180 (82) | 61 (16) | 29.08 (98.48) |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0850, U.S.A.

**Dates of Test:** September-October, 1999

**Manufacturer:** John Deere Waterloo Works, P.O. Box 5100, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60°/60°F** *(15.15°C)* 0.8300 **Fuel weight** 6.910 lb/gal *(0.828 kg/l)* **Oil SAE** 15W-40 **API service classification** CJ-4/SJ **To motor** 6.717 gal *(25.425 l)* **Drained from motor** 6.417 gal *(24.290 l)* **Transmission, hydraulic and final drive lubricant** John Deere HyGard fluid **Total time engine was operated** 22.0 hours.

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *RG6101H100402* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** (as specified) 5.12" × 5.00" *(130.0 mm × 127.0 mm)* **Compression ratio** 15.2 to 1 **Displacement** 619 cu in *(10144 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** 3 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 106.1-115.9 lb/hr *(48.1-52.6 kg/hr)* **High idle** 2225-2325 rpm **Turbo boost** nominal 18.22 psi *(124.452 kPa)* as measured 29.0 psi *(138 kPa)*

**CHASSIS: Type** four wheel drive with duals **Serial No.** **RW8760P001410** **Tread width** rear 75.7" *(1871 mm)* to 132.0" *(3352 mm)* front 73.7" *(1871 mm)* to 132.0" *(3352 mm)* **Wheel base** 133.9" *(3400 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 2.28 *(3.67)*, second 3.02 *(4.86)*, third 5.97 *(6.39)*, fourth 4.65 *(7.48)* fifth 5.36 *(8.63)*, sixth 6.16 *(9.92)*, seventh 7.10 *(11.43)* eighth 8.09 *(13.02)* ninth 9.32 *(15.00)* tenth 10.92 *(17.59)*, eleventh 14.48 *(23.32)* twelfth 19.00 *(30.60)* reverse 2.82 *(4.54)*, 5.74 *(9.25)* **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1895 engine rpm **Unladen tractor mass** 32095 lb *(14558 kg)*

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

## DRAWBAR PERFORMANCE AT 1750 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant | Temp °F (°C) air | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **2nd Gear** | | | | | | | | | |
| 251.76 (172.82) | 51671 (140.68) | 2.74 (4.42) | 2060 | 5.99 | 0.488 (0.297) | 14.17 (2.79) | 186 (85) | 66 (19) | 28.77 (97.43) |
| **3rd Gear** | | | | | | | | | |
| 249.69 (171.40) | 27373 (122.06) | 4.53 (7.30) | 1865 | 4.12 | 0.450 (0.274) | 15.35 (3.02) | 184 (84) | 68 (20) | 28.78 (97.46) |
| **4th Gear** | | | | | | | | | |
| 247.47 (169.87) | 25214 (112.16) | 5.09 (8.19) | 1748 | 3.43 | 0.457 (0.296) | 13.83 (3.22) | 186 (86) | 66 (19) | 28.89 (97.83) |
| **5th Gear** | | | | | | | | | |
| 250.31 (171.83) | 21838 (97.15) | 6.29 (10.12) | 1732 | 2.68 | 0.433 (0.261) | 15.96 (3.14) | 186 (86) | 66 (19) | 28.92 (97.93) |
| **6th Gear** | | | | | | | | | |
| 252.89 (173.59) | 19173 (85.28) | 6.95 (11.19) | 1749 | 1.99 | 0.429 (0.258) | 16.13 (3.18) | 186 (86) | 59 (15) | 29.01 (98.24) |
| **7th Gear** | | | | | | | | | |
| 253.54 (174.04) | 16751 (74.51) | 8.72 (14.03) | 1748 | 1.91 | 0.422 (0.254) | 16.36 (3.23) | 191 (88) | 61 (16) | 28.99 (98.17) |
| **8th Gear** | | | | | | | | | |
| 251.75 (172.81) | 14446 (64.26) | 9.53 (15.32) | 1750 | 1.56 | 0.429 (0.261) | 16.11 (3.17) | 191 (88) | 65 (18) | 28.97 (98.10) |
| **9th Gear** | | | | | | | | | |
| 252.04 (173.01) | 12490 (55.56) | 7.57 (12.18) | 1758 | 1.29 | 0.431 (0.262) | 16.02 (3.16) | 192 (89) | 65 (18) | 28.95 (98.04) |
| **10th Gear** | | | | | | | | | |
| 251.55 (172.67) | 10619 (47.23) | 8.88 (14.29) | 1752 | 1.21 | 0.434 (0.264) | 15.90 (3.13) | 192 (89) | 66 (19) | 28.94 (98.00) |

## DRAWBAR PERFORMANCE AT 2100 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crankshaft speed rpm | Slip % | Fuel Consumption lb/hp-hr (kg/kW-h) | Fuel Consumption Hp-hr per gal (kW-h/L) | Temp °F (°C) coolant | Temp °F (°C) air | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|
| **1st Gear** | | | | | | | | | |
| 186.24 (138.88) | 32360 (143.96) | 2.16 (3.47) | 2181 | 7.04 | 0.521 (0.317) | 15.26 (2.61) | 184 (84) | 66 (19) | 28.78 (97.46) |
| **2nd Gear** | | | | | | | | | |
| 251.58 (172.69) | 50757 (116.72) | 2.85 (4.55) | 2100 | 5.10 | 0.468 (0.297) | 14.15 (2.79) | 185 (85) | 65 (18) | 28.77 (97.43) |
| **3rd Gear** | | | | | | | | | |
| 256.81 (176.59) | 25522 (104.63) | 5.78 (9.08) | 2099 | 5.19 | 0.477 (0.290) | 14.48 (2.85) | 187 (86) | 69 (21) | 28.78 (97.46) |
| **4th Gear** | | | | | | | | | |
| 256.85 (176.61) | 19850 (88.30) | 4.47 (7.20) | 2100 | 2.25 | 0.476 (0.289) | 14.52 (2.86) | 189 (87) | 66 (19) | 28.91 (97.90) |
| **5th Gear** | | | | | | | | | |
| 241.82 (180.32) | 17303 (77.56) | 5.18 (8.34) | 2101 | 1.99 | 0.466 (0.283) | 14.85 (2.92) | 189 (87) | 66 (19) | 28.93 (97.97) |
| **6th Gear** | | | | | | | | | |
| 257.30 (176.95) | 14809 (66.12) | 5.97 (9.61) | 2100 | 1.56 | 0.477 (0.290) | 14.49 (2.85) | 188 (87) | 58 (14) | 29.02 (98.27) |
| **7th Gear** | | | | | | | | | |
| 259.49 (178.59) | 15046 (66.93) | 6.88 (11.08) | 2096 | 1.44 | 0.474 (0.288) | 14.59 (2.87) | 189 (87) | 60 (16) | 29.00 (98.21) |
| **8th Gear** | | | | | | | | | |
| 254.55 (174.91) | 11180 (49.73) | 7.87 (12.66) | 2099 | 1.29 | 0.480 (0.292) | 14.40 (2.84) | 189 (87) | 62 (17) | 28.98 (98.14) |
| **9th Gear** | | | | | | | | | |
| 255.19 (175.38) | 9719 (43.23) | 9.07 (14.60) | 2097 | 1.12 | 0.483 (0.294) | 14.31 (2.82) | 189 (87) | 64 (18) | 28.96 (98.07) |

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 153° F (67° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The pull in 1st and 2nd gears was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1631**, Summary 069, December 22, 1999.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Gear closest to 4.7 mph (7.5 km/h)—4th Gear | 77.5 |
| Maximum sound level | 78.5 |
| Transport speed—no load—12th Gear | 78.0 |
| Bystander in 12th Gear | 80.0 |

## LUGGING ABILITY IN 7th GEAR

| Crankshaft Speed rpm | 2096 | 1902 | 1665 | 1471 | 1263 | 1048 |
|---|---|---|---|---|---|---|
| Pull—lbs | 13046 | 13554 | 17407 | 18117 | 16681 | 14932 |
| —kN | (58.03) | (60.30) | (77.43) | (80.59) | (74.20) | (66.42) |
| Increase in Pull % | 0 | 18 | 53 | 59 | 28 | 14 |
| Power—Hp | 259.49 | 253.70 | 253.14 | 251.83 | 185.54 | 156.69 |
| —kW | (178.59) | (189.18) | (190.25) | (172.88) | (136.72) | (101.95) |
| Speed—Mph | 3.88 | 4.20 | 5.50 | 6.80 | 8.12 | 9.45 |
| —km/h | (11.08) | (9.95) | (8.85) | (7.72) | (6.61) | (5.52) |
| Slip % | 1.47 | 1.30 | 2.08 | 2.25 | 2.08 | 1.75 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|---|---|
| Observed Maximum Pressure psi (bar) | 2500 (172) |
| Location | remote outlet |
| Hydraulic oil temperature °F (°C) | 148 (64) |
| Location | hydraulic sump |
| Category | III |
| Quick attach | Yes |

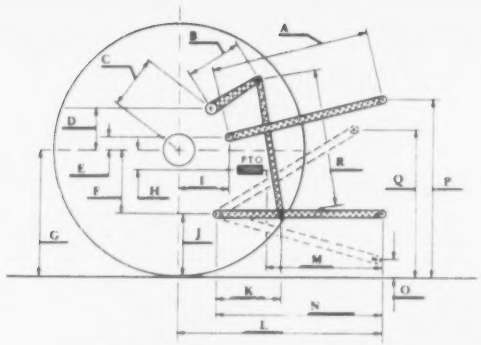
| Hitch point distance to ground level in (mm) | 8.9 (226) | 16.2 (411) | 26.4 (671) | 34.4 (874) | 40.2 (1021) |
|---|---|---|---|---|---|
| Lift force on frame lb | 16025 | 16338 | 16417 | 15822 | 14985 |
| —kN | (71.3) | (72.7) | (73.0) | (70.4) | (66.6) |

| TIRES AND WEIGHT | | Tested Without Ballast |
|---|---|---|
| Rear Tires | —No. size: psi & psi (kPa) | Four 18.4R42 @ 16 psi |
| Front Tires | —No. size: psi & psi (kPa) | Four 18.4R42 @ 16 psi |
| Height of Drawbar | | 17.5 in (445 mm) |
| Static Weight | —Rear | 145533 lb (6502 kg) |
| | —Front | 37760 lb (8056 kg) |
| | —Total | 52095 lb (14558 kg) |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY III
Quick Attach Yes

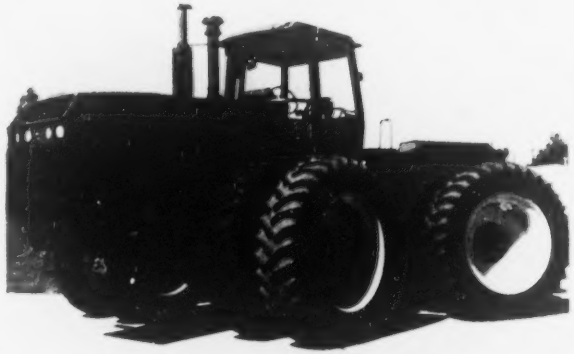
| | |
|---|---|
| Maximum Force Exerted Through Whole Range | 11000 lbs (48.9 kN) |
| i) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2500 psi (172 Bar) |
| ii) Pump delivery rate at minimum pressure | 46.1 GPM (174.5 l/min) |
| iii) Pump delivery rate at maximum hydraulic power | 43.5 GPM (164.7 l/min) |
| Delivery pressure | 1800 psi (124 Bar) |
| Power | 45.7 Hp (34.1 kW) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 33.5 | 850 |
| B | 18.6 | 472 |
| C | 26.2 | 666 |
| D | 24.4 | 620 |
| E | 11.5 | 288 |
| F | 13.8 | 350 |
| G | 35.1 | 892 |
| H | 4.8 | 122 |
| I | 22.7 | 577 |
| J | 21.3 | 542 |
| K | 28.8 | 741 |
| L | 55.4 | 1405 |
| L | 61.8 | 1570 |
| M | 25.4 | 645 |
| N | 44.6 | 1132 |
| O | 7.9 | 201 |
| P | 48.3 | 1228 |
| Q | 40.3 | 1024 |
| R | 44.8 | 1137 |

L—to end of Quick attach



**John Deere 8760 Powershift Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA OECD TRACTOR TEST 1632—SUMMARY 070
# JOHN DEERE 8960 POWERSHIFT DIESEL
# 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr kg/kW-h | Fuel Consumption Hp-hr gal kW-h L | Temp °F °C coolant | Temp °F °C air | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | | |
| **Rated Engine Speed—PTO speed—1002 rpm:** | | | | | | | | | |
| 332.23 | 1466 | 9.63 | 1400 | 16.10 | | | | | |
| 247.76 | 6.52 | 15.50 | | | | | | | |
| **Maximum Power (2 Hours):** | | | | | | | | | |
| 337.42 | 1746 | 10.27 | 1493 | 17.13 | | | | | |
| 251.62 | 7.77 | 16.53 | | | | | | | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | | | | | |
| 330.23 | 1466 | 9.63 | 1400 | 16.10 | | | | | Air temperature |
| 246.28 | 6.52 | 15.50 | | | | | | | |
| 240.29 | 1067 | 14.04 | 1432 | | | | | | 1.2 (12) |
| 179.20 | 4.75 | 22.60 | | | | | | | |
| 0 | 0 | 17.90 | 1432 | 17.77 | | | | | Relative Humidity |
| 0.00 | 0.00 | 28.81 | | | | | | | |
| 153.19 | 2042 | 5.03 | 1400 | 9.03 | | | | | 67 |
| 114.25 | 9.08 | 8.10 | | | | | | | |
| 77.43 | 2060 | 3.03 | 1400 | 4.48 | | | | | Barometer |
| 57.74 | 9.16 | 4.88 | | | | | | | |
| 0.00 | 2131 | 0.00 | 1400 | 0.00 | | | | | 29.66 (Hg) 99.4 (kPa) |
| 0.00 | 9.48 | 0.00 | | | | | | | |

Maximum Torque 1279 lb-ft (1734 N-m) at 1200 rpm
Maximum Torque Rise 39.5%
Torque Rise at rated engine rpm 10%

## DRAWBAR PERFORMANCE
## FUEL CONSUMPTION CHARACTERISTICS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr kg/kW-h | Fuel Consumption Hp-hr gal kW-h L | Temp °F °C coolant | Temp °F °C air | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—6th Gear** | | | | | | | | | |
| 302.04 | 17625 | 6.43 | 1899 | 2.18 | 0.447 | 15.45 | 186 | 58 | 29.15 |
| 225.23 | 78.40 | 10.34 | | | 0.272 | 3.66 | 85 | 14 | 98.65 |
| **75% of Pull at Maximum Power—6th Gear** | | | | | | | | | |
| 243.50 | 15219 | 6.91 | 2030 | 1.64 | 0.523 | 15.22 | 181 | 58 | 29.11 |
| 181.58 | 67.69 | 11.12 | | | 0.318 | 3.60 | 83 | 14 | 98.54 |
| **50% of Pull at Maximum Power—6th Gear** | | | | | | | | | |
| 165.56 | 8029 | 7.04 | 2059 | 1.27 | 0.570 | 12.12 | 128 | 58 | 29.10 |
| 123.46 | 35.71 | 11.33 | | | 0.347 | 2.87 | 53 | 14 | 98.54 |
| **75% of Pull at Reduced Engine Speed—8th Gear** | | | | | | | | | |
| 245.52 | 15225 | 6.90 | 1544 | 1.75 | 0.422 | 16.96 | 185 | 58 | 29.11 |
| 183.06 | 67.72 | 11.11 | | | 0.257 | 4.01 | 85 | 14 | 98.56 |
| **50% of Pull at Reduced Engine Speed—8th Gear** | | | | | | | | | |
| 165.76 | 8013 | 7.05 | 1571 | 1.18 | 0.465 | 14.86 | 179 | 58 | 29.10 |
| 123.61 | 35.65 | 11.35 | | | 0.283 | 3.51 | 82 | 14 | 98.54 |

**Location of Test:** Center for Agricultural Equipment, Lincoln, Nebraska 68583-0832, U.S.A.

**Dates of Test:** September-October 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 **Specific gravity converted to 60/60 F** *(15°/15°C)* 0.8300 **Fuel weight** 6.910 lb/gal *(0.828 kg/l)* **Oil SAE** 15W40 **API service classification** CH4/CI4 **To motor** 5.000 gal *(18.927 l)* **Drained from motor** 7.0953 gal *(26.857 l)* **Transmission, hydraulic and final drive lubricant** John Deere HyGard fluid **Total time engine was operated** 22.3 hours

**ENGINE: Make** Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 11527700 **Crankshaft** lengthwise **Rated engine speed** 1900 **Bore and stroke** as specified: 5.50" × 6.00" *(139.7 mm × 152.4 mm)* **Compression ratio** 14.0:1 **Displacement** 855 cu in *(14021 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil; radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Fuel cooler** radiator for injection pump return fuel **Muffler** vertical **Cooling medium temperature control** one thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 130.2-142.1 lb/hr *(59.0-64.5 kg/hr)* **High idle** 2080-2180 rpm **Turbo boost** nominal 19.25 psi *(131.159 kPa)* as measured 21.5 psi *(148 kPa)*

**CHASSIS: Type** four wheel drive with duals **Serial No.** *RW8960P001169* **Tread width** rear 78.8" *(2002 mm)* to 144.1" *(3659 mm)* front 78.8" *(2002 mm)* to 144.1" *(3659 mm)* **Wheel base** 155.9" *(3400 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph** *(km/h)* first 2.45 *(3.91)* second 3.22 *(5.18)* third 4.22 *(6.80)* fourth 4.94 *(7.96)* fifth 5.71 *(9.19)* sixth 6.56 *(10.56)* seventh 7.56 *(12.17)* eighth 8.61 *(13.86)* ninth 9.92 *(15.98)* tenth 11.63 *(18.71)* eleventh 15.41 *(24.82)* twelfth 20.25 *(32.58)* reverse 5.00 *(4.81)*, 6.12 *(9.85)*. **Clutch** multiple wet disc hydraulically power actuated by foot pedal **Brakes** multiple wet disc hydraulically power actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1003 rpm at 1900 engine rpm **Unladen tractor mass** 35115 lb *(15928 kg)*

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

## DRAWBAR PERFORMANCE AT 1750 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr kg/kW-h | Fuel Consumption Hp-hr gal kW-h L | Temp °F °C coolant | Temp °F °C air | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| 1st Gear | | | | | | | | | |
| 222.54 | 34913 | 2.39 | 2024 | 7.82 | 0.488 | 14.37 | 193 | 89 | 29.34 |
| 165.91 | 155.32 | 3.84 | | | 0.297 | 3.79 | 89 | 32 | 99.36 |
| 2nd Gear | | | | | | | | | |
| 284.31 | 34743 | 3.06 | 1944 | 7.17 | 0.463 | 14.96 | 193 | 87 | 29.34 |
| 212.01 | 154.57 | 4.93 | | | 0.282 | 3.95 | 89 | 31 | 99.36 |
| 3rd Gear | | | | | | | | | |
| 301.01 | 30143 | 3.74 | 1765 | 4.66 | 0.445 | 13.90 | 194 | 90 | 29.32 |
| 224.4 | 134.08 | 6.01 | | | 0.271 | 3.67 | 90 | 32 | 99.31 |
| 4th Gear | | | | | | | | | |
| 304.47 | 25910 | 4.41 | 1752 | 3.79 | 0.437 | 13.91 | 193 | 72 | 29.33 |
| 227.04 | 115.24 | 7.10 | | | 0.266 | 3.67 | 89 | 22 | 99.34 |
| 5th Gear | | | | | | | | | |
| 304.24 | 22304 | 5.12 | 1752 | 2.90 | 0.437 | 13.92 | 190 | 74 | 29.33 |
| 226.87 | 99.23 | 8.23 | | | 0.266 | 3.67 | 88 | 23 | 99.34 |
| 6th Gear | | | | | | | | | |
| 305.58 | 19562 | 5.80 | 1750 | 2.63 | 0.430 | 14.06 | 190 | 75 | 29.33 |
| 227.91 | 87.02 | 9.34 | | | 0.262 | 3.74 | 88 | 24 | 99.34 |
| 7th Gear | | | | | | | | | |
| 307.19 | 16888 | 6.82 | 1745 | 2.18 | 0.431 | 14.02 | 190 | 77 | 29.33 |
| 229.07 | 75.12 | 10.98 | | | 0.262 | 3.73 | 88 | 25 | 99.34 |
| 8th Gear | | | | | | | | | |
| 303.39 | 14365 | 7.82 | 1753 | 1.92 | 0.433 | 13.88 | 191 | 80 | 29.09 |
| 226.19 | 63.89 | 12.58 | | | 0.263 | 3.71 | 88 | 27 | 98.51 |
| 9th Gear | | | | | | | | | |
| 303.93 | 12834 | 9.02 | 1750 | 1.64 | 0.436 | 13.80 | 189 | 82 | 29.09 |
| 226.60 | 56.20 | 14.52 | | | 0.265 | 3.69 | 87 | 28 | 98.51 |

## DRAWBAR PERFORMANCE AT 1900 RPM
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp kW | Drawbar pull lbs kN | Speed mph km/h | Crank shaft speed rpm | Slip % | Fuel Consumption lb/hp-hr kg/kW-h | Fuel Consumption Hp-hr gal kW-h L | Temp °F °C coolant | Temp °F °C air | Barom inch Hg kPa |
|---|---|---|---|---|---|---|---|---|---|
| 2nd Gear | | | | | | | | | |
| 289.00 | 34967 | 5.10 | 1953 | 6.51 | 0.451 | 15.31 | 184 | 65 | 29.34 |
| 215.51 | 155.54 | 8.20 | | | 0.275 | 3.92 | 84 | 18 | 99.36 |
| 3rd Gear | | | | | | | | | |
| 300.36 | 27757 | 4.95 | 1890 | 5.96 | 0.448 | 15.41 | 184 | 66 | 29.33 |
| 223.98 | 123.48 | 7.96 | | | 0.273 | 3.94 | 84 | 19 | 99.34 |
| 4th Gear | | | | | | | | | |
| 300.22 | 25470 | 4.80 | 1896 | 5.26 | 0.436 | 15.14 | 188 | 71 | 29.33 |
| 223.87 | 113.30 | 7.72 | | | 0.266 | 3.86 | 87 | 22 | 99.34 |
| 5th Gear | | | | | | | | | |
| 302.90 | 20415 | 5.56 | 1898 | 2.65 | 0.449 | 15.39 | 189 | 75 | 29.33 |
| 225.88 | 90.81 | 8.95 | | | 0.273 | 3.93 | 87 | 24 | 99.34 |
| 6th Gear | | | | | | | | | |
| 302.04 | 17625 | 6.43 | 1899 | 2.18 | 0.447 | 15.45 | 186 | 58 | 29.15 |
| 225.23 | 78.40 | 10.34 | | | 0.272 | 3.66 | 85 | 14 | 98.65 |
| 7th Gear | | | | | | | | | |
| 300.54 | 15160 | 7.43 | 1900 | 2.00 | 0.449 | 15.38 | 191 | 78 | 29.10 |
| 224.11 | 67.44 | 11.96 | | | 0.273 | 3.93 | 88 | 26 | 98.54 |
| 8th Gear | | | | | | | | | |
| 298.53 | 13185 | 8.49 | 1901 | 1.82 | 0.454 | 15.25 | 185 | 68 | 29.12 |
| 222.61 | 58.66 | 13.67 | | | 0.276 | 3.90 | 85 | 16 | 98.61 |

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 102° F (39° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. The pull in 1st and 2nd gears was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1632**, Summary 070, December 22, 1989.

LOUIS T. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. E. HOFFMAN
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Cab (doors to 4.7 mph/7.5 km/h—3rd Gear) | 79 |
| Maximum sound level | 80 |
| Transport speed—to road—12th Gear | 79 |
| Bystander in 12th Gear | 90 |

## LUGGING ABILITY IN 6th GEAR

| Crankshaft Speed (rpm) | 1900 | 1712 | 1520 | 1328 | 1136 | 900 |
|---|---|---|---|---|---|---|
| Pull—lbs. | 17625 | 20207 | 22115 | 24277 | 24863 | 22730 |
| kN | 78.40 | 89.90 | 98.36 | 107.99 | 110.60 | 101.11 |
| Increase in Pull % | | 15 | 25 | 38 | 41 | 29 |
| Power—Hp | 502.94 | 511.25 | 501.44 | 487.08 | 450.56 | 345.17 |
| kW | 375.23 | 381.10 | 373.78 | 363.05 | 335.74 | 257.34 |
| Speed—Mph | 5.43 | 5.76 | 6.11 | 6.44 | 6.61 | 6.22 |
| km/h | 8.74 | 9.26 | 9.83 | 10.36 | 10.63 | 10.01 |
| Slip % | 2.16 | 2.94 | 4.72 | 9.29 | 9.44 | 9.06 |

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|---|---|
| (Rear-end) Maximum Pressure psi (bar) | 2500 (172) |
| Location | Remote outlet |
| Hydraulic oil temperature °F (°C) | 120 (49) |
| Location | Hydraulic sump |
| Category | IV |
| Quick attach | Yes |

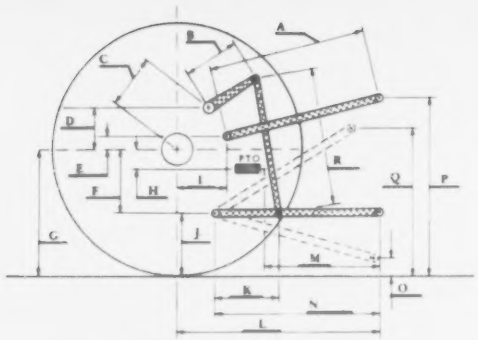
Hitch point distance

| | | | | | |
|---|---|---|---|---|---|
| to ground level in. (mm) | 9.0 (229) | 16.2 (411) | 26.4 (670) | 38.4 (975) | 48.9 (1166) |
| Lift force on frame lb. | 15978 | 16568 | 16014 | 13554 | 15068 |
| kN | 71.1 | 73.7 | 71.2 | 60.3 | 67.1 |

| TIRES AND WEIGHT | | Tested Without Ballast |
|---|---|---|
| Rear Tires | —No. size psi (kPa) | Four 20.8R42 ** 14 PR |
| Front Tires | —No. size psi (kPa) | Four 20.8R42 ** 14 PR |
| Height of Drawbar | | 19 in. 485 mm |
| Static Weight | —Rear | 31530 lb. 7047 kg |
| | —Front | 16946 lb. 8845 kg |
| | —Total | 50476 lb. 19824 kg |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

| | |
|---|---|
| CATEGORY IV | |
| Quick Attach Yes | |
| Maximum Force Exerted Through Whole Range | 11701 lbs. (52.0 kN) |
| (a) Opening pressure of relief valve | NA |
| Sustained pressure with pump stalled | 2510 psi (177 Bar) |
| (c) Pump delivery rate at maximum pressure | 45.1 GPM (170.2 l/min) |
| (e) Pump delivery rate at maximum hydraulic power | 59.9 GPM (225.0 l/min) |
| Delivery pressure | 1900 psi (131 Bar) |
| Power | 44.2 Hp (33.0 kW) |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 31.0 | 787 |
| B | 18.6 | 472 |
| C | 26.2 | 666 |
| D | 24.4 | 620 |
| E | 11.3 | 288 |
| F | 13.8 | 351 |
| G | 36.1 | 918 |
| H | 4.8 | 122 |
| I | 22.7 | 577 |
| J | 22.3 | 566 |
| K | 28.5 | 724 |
| L | 54.5 | 1385 |
| M | 30.5 | 775 |
| N | 24.6 | 625 |
| O | 41.2 | 1047 |
| P | 41.3 | 1049 |
| Q | 40.9 | 1039 |
| R | 41.6 | 1057 |

L = end of Quick Attach

**John Deere 8960 Powershift Diesel**

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA TRACTOR TEST 1633—DEUTZ ALLIS 9150 DIESEL 18 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption: gal/hr (L/h) | lb/hp hr (kg/kW h) | Hp hr per gal (kW h/L) | Cooling medium | Temperature °F (°C): Air wet bulb | Air dry bulb | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed—Two Hours (PTO Speed—1021 rpm)** | | | | | | | | |
| 151.07 (112.65) | 2400 | 9.274 (35.100) | 0.424 (0.258) | 16.29 (3.27) | 205 (96) | 55 (13) | 75 (24) | 28.88 (97.76) |
| **Standard Power Take-off Speed (1000 rpm)—One Hour** | | | | | | | | |
| 150.22 (112.02) | 2550 | 9.119 (34.518) | 0.419 (0.255) | 16.47 (3.25) | 205 (96) | 55 (13) | 75 (24) | 28.89 (97.83) |
| **VARYING POWER AND FUEL CONSUMPTION—Two Hours** | | | | | | | | |
| 151.72 (99.22) | 2465 | 8.470 (32.064) | 0.444 (0.270) | 15.55 (3.06) | 197 (91) | 56 (13) | 74 (23) | |
| | 2575 | 2.451 (9.201) | | | 187 (86) | 56 (13) | 76 (24) | |
| 67.00 (49.96) | 2511 | 5.488 (20.771) | 0.566 (0.344) | 12.21 (2.41) | 174 (79) | 56 (13) | 76 (24) | |
| 151.89 (113.26) | 2400 | 9.260 (35.055) | 0.421 (0.256) | 16.40 (3.23) | 205 (96) | 56 (13) | 75 (24) | |
| 54.02 (25.37) | 2546 | 5.951 (14.955) | 0.802 (0.488) | 8.61 (1.70) | 174 (79) | 55 (13) | 75 (23) | |
| 99.71 (74.35) | 2482 | 6.955 (26.328) | 0.482 (0.293) | 14.54 (2.82) | 183 (84) | 55 (13) | 75 (24) | |
| **Av (to 26)** | **2497** | **6.093 (23.063)** | **0.521 (0.317)** | **13.35 (2.63)** | **187 (86)** | **55 (13)** | **75 (24)** | **28.35 (97.70)** |

## DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption: gal/hr (L/h) | lb/hp hr (kg/kW h) | Hp hr per gal (kW h/L) | Cool ing med | Temp °F (°C): Air wet bulb | Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power—Two Hours 8th (3D) Gear** | | | | | | | | | | | |
| 152.71 (98.98) | 9699 (43.14) | 5.18 (8.26) | 2400 | 2.68 | 9.192 (34.567) | 0.475 (0.289) | 14.55 (2.86) | 185 (84) | 60 (4) | 51 (11) | 28.69 (97.14) |
| **75% of Pull at Maximum Power—Two Hours 8th (3D) Gear** | | | | | | | | | | | |
| 105.29 (78.51) | 7406 (32.94) | 5.35 (8.58) | 2478 | 2.01 | 7.880 (29.829) | 0.517 (0.315) | 13.36 (2.63) | 179 (82) | 47 (8) | 58 (15) | 28.62 (96.92) |
| **50% of Pull at Maximum Power—Two Hours 8th (3D) Gear** | | | | | | | | | | | |
| 71.46 (53.29) | 4958 (21.97) | 5.45 (8.73) | 2539 | 1.53 | 6.245 (23.638) | 0.604 (0.367) | 11.44 (2.25) | 159 (70) | 41 (5) | 51 (11) | 28.88 (97.80) |
| **50% of Pull at Reduced Engine Speed—Two Hours 13th (5D) Gear** | | | | | | | | | | | |
| 71.52 (53.33) | 4958 (21.97) | 5.45 (8.74) | 1619 | 1.49 | 4.682 (17.722) | 0.452 (0.275) | 15.28 (3.01) | 173 (78) | 63 (17) | 57 (14) | 28.81 (97.54) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 119.68 (89.25) | 17334 (77.11) | 2.59 (4.17) | 2442 | 12.99 | | 9th (1C) Gear | | 167 (75) | 58 (14) | 45 (7) | 28.86 (97.80) |
| 130.66 (97.45) | 16611 (73.89) | 2.95 (4.75) | 2398 | 7.64 | | 5th (2D) Gear | | 179 (82) | 59 (15) | 50 (10) | 28.70 (97.19) |
| 155.15 (99.29) | 13652 (60.64) | 3.66 (5.89) | 2401 | 4.17 | | 6th (2C) Gear | | 182 (83) | 59 (15) | 50 (10) | 28.71 (97.22) |
| 152.48 (98.79) | 11781 (52.40) | 4.22 (6.79) | 2401 | 5.27 | | 7th (3C) Gear | | 182 (83) | 58 (14) | 49 (9) | 28.72 (97.26) |
| 135.28 (100.88) | 9875 (43.93) | 5.14 (8.27) | 2402 | 2.68 | | 8th (3D) Gear | | 182 (83) | 60 (16) | 52 (11) | 28.68 (97.12) |
| 131.78 (98.27) | 8908 (39.62) | 5.55 (8.93) | 2400 | 2.51 | | 9th (4C) Gear | | 183 (84) | 60 (16) | 51 (11) | 28.69 (97.16) |
| 152.53 (98.98) | 8060 (35.85) | 6.16 (9.91) | 2401 | 2.29 | | 10th (3C) Gear | | 185 (85) | 60 (16) | 51 (11) | 28.68 (97.12) |
| 152.54 (98.84) | 7516 (33.43) | 6.61 (10.64) | 2401 | 2.09 | | 11th (5C) Gear | | 184 (84) | 60 (16) | 51 (11) | 28.68 (97.12) |
| 134.82 (100.54) | 7502 (33.37) | 6.74 (10.85) | 2401 | 2.00 | | 12th (4D) Gear | | 182 (83) | 60 (16) | 52 (11) | 28.68 (97.12) |
| 134.00 (99.93) | 6265 (27.88) | 8.02 (12.91) | 2401 | 1.75 | | 13th (5D) Gear | | 183 (84) | 60 (16) | 52 (11) | 28.68 (97.12) |

**Department of Agricultural Engineering**

**Dates of Test:** November 2-14, 1989

**Manufacturer:** WHITE NEW IDEA FARM EQUIPMENT CO., 123 West Sycamore Street, Coldwater, Ohio 45828

**FUEL, OIL AND TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8300 **Fuel weight** 6.910 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W-40 **API service classification** CE, CD-II. SG **To motor** 4.295 gal *(16.257 l)* **Drained from motor** 2.852 gal *(10.795 l)* **Transmission and final drive lubricant** Deutz Allis Power Fluid 821-XL **Total time engine was operated** 52.0 hours

**ENGINE: Make** Klockner-Humboldt-Deutz Ag Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 7650794 **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** (as specified) 4.016" × 4.921" *(102 mm × 125 mm)* **Compression ratio** 15.5 to 1 **Displacement** 574 cu in *(6129 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** radiator for crankcase oil, separate radiators for transmission and powershift oils **Fuel filter** two paper cartridges **Fuel cooler** radiator for injection pump return fuel **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** air cooled with variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate** 62.8-67.2 lb/h *(28.5-30.5 kg/h)* **High idle** 2550-2600 rpm **Turbo boost** nominal 11.3-13.8 psi *(78-95 kPa)* as measured 13.0 psi *(90 kPa)*

**CHASSIS: Type** standard with duals **Serial No.** "9150T-1071" **Tread width** rear 64" *(1626 mm)* to 125" *(3175 mm)* front 67.0" *(1700 mm)* to 91.0" *(2310 mm)* **Wheel base** 120" *(3048 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 30.4" *(773 mm)* Vertical distance above roadway 39.2" *(995 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.9 *(3.1)* second 2.5 *(3.8)* third 2.5 *(4.1)* fourth 2.8 *(4.5)* fifth 3.1 *(4.9)* sixth 3.7 *(5.9)* seventh 4.2 *(6.7)* eighth 5.1 *(8.1)* ninth 5.4 *(8.8)* tenth 6.0 *(9.7)* eleventh 6.5 *(10.4)* twelfth 6.6 *(10.6)* thirteenth 7.8 *(12.6)* fourteenth 7.9 *(12.7)* fifteenth 9.5 *(15.0)* sixteenth 15.9 *(22.4)* seventeenth 16.8 *(27.1)* eighteenth 20.1 *(32.4)* reverse 2.2 *(3.6)*, 2.7 *(4.4)*, 3.5 *(5.2)*, 4.8 *(7.8)*, 5.9 *(9.5)* 7.0 *(11.3)* **Clutch** dry disc operated by foot pedal **Brakes** wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 161" *(4.09 m)* left 167" *(4.24 m)* (on concrete surface without brake) right 259" *(6.58 m)* left 260" *(6.60 m)* **Turning space diameter** (on concrete surface with brake applied) right 329" *(8.36 m)* left 341" *(8.66 m)* (on concrete surface without brake) right 552" *(14.02 m)* left 549" *(13.95 m)* **Power take-off** 540 rpm at 2379 engine rpm and 1000 rpm at 2551 engine rpm **Unladen tractor mass** 14285 lb *(6480 kg)*

## LUGGING ABILITY IN 6th (3D) GEAR

| Crankshaft Speed rpm | 2402 | 2168 | 1913 | 1688 | 1455 | 1190 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 9875 (43.93) | 10610 (47.20) | 11488 (51.10) | 12449 (55.38) | 12838 (57.11) | 11125 (49.48) |
| Increase in Pull % | 0 | 7 | 16 | 26 | 30 | 13 |
| Power—Hp (kW) | 135.28 (100.88) | 130.92 (97.63) | 124.65 (92.95) | 110.85 (82.67) | 103.91 (77.49) | 75.60 (56.38) |
| Speed—Mph (km/h) | 5.14 (8.27) | 4.63 (7.45) | 4.07 (6.55) | 3.58 (5.76) | 3.04 (4.88) | 2.55 (4.10) |
| Slip % | 2.68 | 2.85 | 3.19 | 3.52 | 5.08 | 3.19 |

## TRACTOR SOUND LEVEL WITH CAB

| | dB(A) |
|---|---|
| Maximum Available Power—Two Hours | 75.3 |
| 75% of Pull at Maximum Power—Ten Hours | 76.0 |
| 50% of Pull at Maximum Power—Two Hours | 75.3 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 74.3 |
| Bystander in 18th (6D) gear | 86.3 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —No., size, ply & psi (kPa) | Four 20.8R38,* 12 (85) | Four 20.8R38,* 12 (85) |
| Ballast | —Liquid (each) | 524 lb (238 kg) | None |
| | —Tire Equap (each) | 60 lb (27 kg) | None |
| Front Tires | —No., size, ply & psi (kPa) | Two 14L-16.1 R, 28 (195) | Two 14L-16.1 R, 28 (195) |
| Ballast | —Liquid (each) | None | None |
| | —Cast Iron (each) | 187 lb (85 kg) | None |
| Height of Drawbar | | 22 in (560 mm) | 22 in (560 mm) |
| Static Weight with Operator | —Rear | 14260 lb (6468 kg) | 11925 lb (5409 kg) |
| | —Front | 4565 lb (1980 kg) | 3990 lb (1810 kg) |
| | —Total | 18825 lb (8668 kg) | 15915 lb (7219 kg) |

**REPAIRS and ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125°F (52°C). Ten gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The cooling air temperature was measured in the airstream of cylinder number 5. The report reflects the test on the tractor equipped with the above hood air inlet.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1633**, February 8, 1990.

LOUIS I. LEVITICUS
Engineer-in-Charge

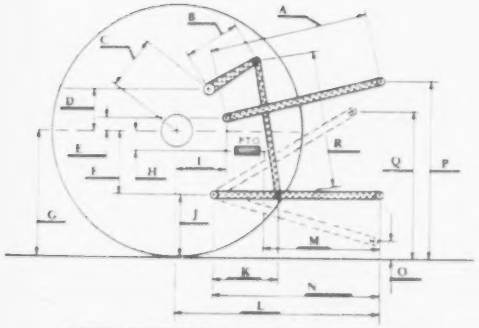
K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## THREE POINT HITCH PERFORMANCE

| | | |
|---|---|---|
| Power Maximum Hydraulic Lift Capacity | | |
| Category | | |
| Hydraulic Lift Capacity | | |
| Category | | |

Maximum Lift Capacity

| | | with boost cylinders |
|---|---|---|
| QUICK-RAISE SYSTEM | | |
| CATEGORY | III | III |
| LOAD (lb) | | |
| LOAD (kg) | | |
| HITCH POINTS (inch) (mm) | | |
| Lower jaw pins | | |
| Top link pins | | |
| Hydraulic jacks | | |
| CLEARANCE (inch) (mm) | | |
| Lower jaw | | |
| Top link pins | | |
| Hydraulic jacks | | |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 24.9 | 632 |
| B | 16.0 | 406 |
| C | 20.1 | 511 |
| D | 16.6 | 422 |
| E | 10.4 | 263 |
| F | 10.2 | 260 |
| G | 32.5 | 826 |
| H | 3.9 | 99 |
| I | 19.9 | 506 |
| J | 22.3 | 566 |
| K | 21.8 | 553 |
| L | 45.3 | 1151 |
| M | 22.3 | 566 |
| N | 34.8 | 884 |
| O | 8.0 | 203 |
| P | 44.3 | 1125 |
| Q | 36.3 | 922 |
| R | 38.3 | 973 |

**Deutz Allis 9150 Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director




# NEBRASKA TRACTOR TEST 1634—DEUTZ ALLIS 9170 DIESEL 18 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Mode | Gear | Travel Speed | Engine Speed | Slip | Fuel Consumption | | | Temp. | | | Barom. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hp / kW | | mph / km/h | rpm | % | gal/h / L/h | lb/hp-h / kg/kW-h | gal/hp-h / L/kW-h | Cool. °F / °C | Oil °F / °C | Air °F / °C | inch Hg / kPa |
| **Maximum Available Power—Two Hours 8th (5D) Gear** | | | | | | | | | | | |
| 133.86 / 99.82 | 11457 / 4744 | 4.93 / 7.93 | 2301 | 3.25 | 11.143 / 42.182 | 0.444 / 0.272 | 3.306 / 2.026 | 204 / 96 | 243 / 117 | 96 / 36 | 28.72 / 97.24 |
| **75% of Full at Maximum Power—Ten Hours 8th (5D) Gear** | | | | | | | | | | | |
| 125.97 / 93.95 | 9955 / 4028 | 5.13 / 8.26 | 2377 | 2.45 | 9.734 / 36.847 | 0.445 / 0.273 | 2.774 / 1.700 | 183 / 84 | 44 / 7 | 50 / 10 | 23.81 / 97.55 |
| **50% of Full at Maximum Power—Two Hours 8th (3D) Gear** | | | | | | | | | | | |
| 84.33 / 62.89 | 6035 / 2685 | 5.25 / 8.45 | 2414 | 1.79 | 7.887 / 29.856 | 0.645 / 0.392 | 10.72 / 2.11 | 142 / 61 | 47 / 8 | 57 / 14 | 28.63 / 96.96 |
| **50% of Full at Reduced Engine Speed—Two Hours 14th (5D) Gear** | | | | | | | | | | | |
| 84.33 / 62.89 | 9035 / 2685 | 3.23 / 5.45 | 1557 | 1.60 | 5.545 / 20.991 | 0.455 / 0.276 | 15.25 / 3.00 | 148 / 64 | 46 / 8 | 58 / 14 | 28.50 / 96.52 |

## MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed—Two Hours (PTO Speed—1061 rpm)**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 133.17 / 99.31 | 2300 | 14.917 / 24.010 | 0.430 / 0.258 | 15.74 / 3.34 | 137 / 58 | | | 52 / 11 | 73 / 23 | 24.04 / 99.63 |

**Standard Power Take-off Speed (1000 rpm)—One Hour**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 126.70 / 94.50 | 2187 / 1124 | 10.692 / 17.209 | 0.433 / 0.260 | 14.77 / 3.13 | 140 / 60 | | | 52 / 11 | 74 / 23 | 24.03 / 99.59 |

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 130.85 / 97.59 | 2351 / 1132 | 10.372 / 16.694 | 0.466 / 0.281 | 14.93 / 3.17 | 151 / 66 | | | 50 / 10 | | |
| | | 2484 | 3.432 / 5.524 | | | | | 191 / 88 | 72 / 22 | 73 / 23 | |
| 76.78 / 57.26 | 2392 | 6.490 / 10.445 | 0.564 / 0.340 | 11.85 / 2.51 | 174 / 79 | | | 54 / 12 | | |
| 110.44 / 82.37 | 2386 | 10.029 / 16.142 | 0.444 / 0.268 | 13.37 / 2.84 | 156 / 69 | | | 54 / 12 | | |
| 98.61 / 73.55 | 2421 | 8.795 / 14.154 | 0.503 / 0.303 | 14.04 / 2.98 | 162 / 72 | | | 54 / 12 | | |
| 113.20 / 84.42 | 2334 | 9.292 / 14.956 | 0.496 / 0.299 | 13.66 / 2.90 | 171 / 77 | | | 53 / 12 | | |
| 90.99 / 67.85 | 2384 | 7.888 / 12.697 | 0.553 / 0.333 | 12.49 / 2.66 | 179 / 82 | | | 54 / 12 | 76 / 25 | 29.22 / 98.95 |

## DRAWBAR PERFORMANCE

| Power hp / kW | Travel Speed mph / km/h | Engine Speed rpm | Slip % | Fuel Consumption gal/h / L/h | lb/hp-h / kg/kW-h | gal/hp-h / L/kW-h | Temp. °F / °C Cool. | Oil | Air | Barom. inch Hg / kPa |
|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power—Two Hours 8th (5D) Gear** | | | | | | | | | | |
| 133.86 / 99.82 | 4.93 / 7.93 | 2301 | 3.25 | 11.143 / 42.182 | 0.444 / 0.272 | 3.306 / 2.026 | 204 / 96 | 243 / 117 | 96 / 36 | 28.72 / 97.24 |
| **75% of Full at Maximum Power—Ten Hours 8th (5D) Gear** | | | | | | | | | | |
| 125.97 / 93.95 | 5.13 / 8.26 | 2377 | 2.45 | 9.734 / 36.847 | 0.445 / 0.273 | 2.774 / 1.700 | 183 / 84 | 44 / 7 | 50 / 10 | 23.81 / 97.55 |
| **50% of Full at Maximum Power—Two Hours 8th (3D) Gear** | | | | | | | | | | |
| 84.33 / 62.89 | 5.25 / 8.45 | 2414 | 1.79 | 7.887 / 29.856 | 0.645 / 0.392 | 10.72 / 2.11 | 142 / 61 | 47 / 8 | 57 / 14 | 28.63 / 96.96 |
| **50% of Full at Reduced Engine Speed—Two Hours 14th (5D) Gear** | | | | | | | | | | |
| 84.33 / 62.89 | 3.23 / 5.45 | 1557 | 1.60 | 5.545 / 20.991 | 0.455 / 0.276 | 15.25 / 3.00 | 148 / 64 | 46 / 8 | 58 / 14 | 28.50 / 96.52 |

## MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 137.24 / 102.34 | 10027 / 4546 | 2.70 / 4.35 | 2586 | 15.67 | 5th (2D) Gear | 146 / 63 | 51 / 11 | 44 / 7 | 28.71 / 97.22 |
| 154.02 / 114.85 | 16773 / 7602 | 3.44 / 5.54 | 2299 | 5.75 | 9th (2D) Gear | 153 / 67 | 45 / 7 | 55 / 13 | 28.74 / 97.33 |
| 155.79 / 116.17 | 14607 / 6623 | 4.00 / 6.44 | 2500 | 4.27 | 7th (3L) Gear | 155 / 68 | 42 / 6 | 52 / 11 | 28.74 / 97.33 |
| 156.66 / 116.83 | 12075 / 5476 | 4.95 / 7.97 | 2501 | 5.19 | 8th (3D) Gear | 157 / 69 | 45 / 7 | 55 / 13 | 28.79 / 97.49 |
| 154.82 / 115.45 | 10677 / 4841 | 5.29 / 8.51 | 2500 | 2.94 | 9th (4L) Gear | 153 / 67 | 45 / 7 | 55 / 13 | 28.74 / 97.33 |
| 156.36 / 116.60 | 9680 / 4389 | 5.87 / 9.45 | 2500 | 2.60 | 10th (3D) Gear | 157 / 69 | 45 / 7 | 54 / 12 | 28.74 / 97.33 |
| 155.24 / 115.76 | 9229 / 4185 | 6.51 / 10.15 | 2298 | 2.45 | 11th (5L) Gear | 160 / 71 | 45 / 7 | 55 / 13 | 28.75 / 97.29 |
| 156.50 / 116.70 | 9170 / 4158 | 6.48 / 10.43 | 2501 | 2.41 | 12th (4D) Gear | 157 / 69 | 44 / 7 | 55 / 13 | 28.75 / 97.29 |
| 154.53 / 115.20 | 7502 / 3402 | 7.72 / 12.42 | 2500 | 2.00 | 13th (6D) Gear | 160 / 71 | 44 / 7 | 55 / 13 | 28.72 / 97.26 |
| 157.63 / 117.56 | 7661 / 3474 | 7.72 / 12.42 | 2298 | 2.00 | 14th (5D) Gear | 161 / 72 | 44 / 7 | 55 / 13 | 28.71 / 97.22 |
| 151.49 / 112.95 | 6179 / 2802 | 9.20 / 14.80 | 2502 | 1.57 | 15th (3D) Gear | 158 / 70 | 44 / 7 | 55 / 13 | 28.70 / 97.19 |

**Department of Agricultural Engineering**

**Dates of Test:** October 31–November 13, 1980

**Manufacturer:** WHITE NEW IDEA FARM EQUIPMENT CO., 425 West Stoughton Street, Coldwater, Ohio 45828.

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel **Cetane No.** 51 (rating taken from oil company's inspection data). **Specific gravity converted to 60/60°F (15°/15°C)** 0.8500. **Fuel weight** 6.910 lbs/gal (0.828 kg/l). **Oil SAE** 15W-40 **API service classification** CE, CD/II, SG. **To motor** 6.871 gal (26.006 l). **Drained from motor** 6.074 gal (22.994 l). **Transmission and final drive lubricant** Deutz Allis Power Fluid 821-XL. **Total time engine was operated** 34.5 hours.

**ENGINE: Make** Klockner Humboldt Deutz AG Diesel **Type** six cylinder vertical with turbocharger. **Serial No.** 7634213. **Crankshaft** lengthwise. **Rated rpm** 2500. **Bore and stroke** (as specified) 4.921" × 5.118" (125 mm × 130 mm). **Compression ratio** 15.8 to 1. **Displacement** 384 cu in (9570 ml). **Starting system** 12 volt. **Lubrication** pressure. **Air cleaner** two paper elements and aspirator. **Oil filter** two full flow cartridges. **Oil cooler** radiator for crankcase oil, separate radiators for transmission and power-shift oils. **Fuel filter** two paper cartridges. **Fuel cooler** radiator for injection pump return fuel. **Muffler** underhood. **Exhaust** vertical. **Cooling medium temperature control** air cooled with variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 74.96-80.47 lb/h (34.0-36.5 kg/h). **High idle** 2450-2500 rpm. **Turbo boost** nominal 12.4-16.0 psi (85-110 kPa) as measured 14.8 psi (102 kPa).

**CHASSIS: Type** standard with duals. **Serial No.** "9170T-1016". **Tread width** rear 64" (1626 mm) to 125" (3175 mm) front 65.0" (1650 mm) to 85" (2160 mm). **Wheel base** 119" (3023 mm). **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation). Horizontal distance forward from centerline of rear wheels 37.5" (953 mm). Vertical distance above roadway 39.6" (1006 mm). Horizontal distance from center of rear wheel tread 0" (0 mm) to the right/left. **Hydraulic control system** direct engine drive. **Transmission** selective gear fixed ratio with partial (3) range operator controlled power-shift. **Advertised speeds mph (km/h)** first 1.9 (3.1) second 2.5 (3.8) third 2.5 (4.0) fourth 2.8 (4.5) fifth 3.1 (4.9) sixth 3.6 (5.8) seventh 4.1 (6.6) eighth 5.0 (8.1) ninth 5.8 (8.7) tenth 6.0 (9.6) eleventh 6.4 (10.2) twelfth 6.6 (10.6) thirteenth 7.8 (12.5) fourteenth 7.8 (12.6) fifteenth 9.2 (14.9) sixteenth 15.8 (22.2) seventeenth 16.8 (27.0) eighteenth 19.9 (32.0) reverse 2.2 (3.6), 2.7 (4.4), 3.2 (5.2), 4.8 (7.7), 5.9 (9.4) 6.9 (11.1). **Clutch** dry disc operated by foot pedal. **Brakes** wet disc hydraulically power actuated by two foot pedals which can be locked

## LUGGING ABILITY IN 8th (SD) GEAR

| Crankshaft Speed—rpm | 2301 | 2076 | 1842 | 1607 | 1375 | 1140 |
|---|---|---|---|---|---|---|
| Pull—lbs | 12073 | 13020 | 13999 | 14937 | 16032 | 16929 |
| —kN | 53.7 | 57.9 | 62.3 | 66.4 | 71.3 | 75.3 |
| Increase in Pull—% | 0 | 15 | 27 | 37 | 58 | 76 |
| Power—Hp | 1.6.16 | 1.0.49 | 1.6.98 | 1.0.46 | 1.0.78 | 1.0.96 |
| —kW | 1.4.72 | 1.4.65 | 1.4.91 | 1.4.76 | 1.4.84 | 1.4.90 |
| Speed—Mph | 4.93 | 4.43 | 3.90 | 3.42 | 2.84 | 2.41 |
| —km/h | 7.93 | 7.13 | 6.28 | 5.50 | 4.57 | 3.88 |
| Slip—% | 8.79 | 3.63 | 1.27 | 2.9 | 5.1 | 5.41 |

## TRACTOR SOUND LEVEL WITH CAB

| | dB(A) |
|---|---|
| Maximum Available Power—Two Hours | 76.— |
| 75% of Pull at Maximum Power—Ten Hours | 77.0 |
| 50% of Pull at Maximum Power—Two Hours | 76.0 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 73.0 |
| Bystander in 18th (6C) gear | 88.0 |

## TIRES, BALLAST AND WEIGHT

| | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —No. size, ply & psi kPa | Four 20.8R38 * 14 x 42 * | Four 20.8R38 * 14 x 42 * |
| Ballast | —Liquid, each | 874 lb 396 kg | None |
| | —Tire, liquid, each | 903 lb 410 kg | None |
| Front Tires | —No. size, ply & psi kPa | Two 18.4R34 * 14 x 34 * 12 ply 220 | Two 18.4R34 * 14 x 34 * 12 ply 220 |
| Ballast | —Liquid, each | None | None |
| | —Cast iron, each | 903 lb 410 kg | None |
| Height of Drawbar | | 22 in 560 mm | 22 in 560 mm |
| Static Weight with Operator | —Rear | 18665 lb 8466 kg | 12515 lb 5675 kg |
| | —Front | 9615 lb 4362 kg | 6435 lb 2919 kg |
| | —Total | 28280 lb 12828 kg | 18950 lb 8595 kg |

together. **Steering** lock-to-lock: **Turning radius** on concrete surface with brake applied: right 13 ft 4.27 m; left 16 ft 4.99 m; on concrete surface without brake: right 20 ft 6.13 m; left 19 ft 5.91 m. **Turning space diameter** on concrete surface with brake applied: right 33 ft 8.92 m; left 39 ft 8.61 m; on concrete surface without brake: right 43 ft 13.07 m; left 41 ft 12.52 m. **Power take-off** 1000 rpm at 2168 engine rpm. **Unladen tractor mass** 13855 lb 7283 kg.

**REPAIRS and ADJUSTMENTS:** During the 10 hour test the left rear dual wheel came off the axle. The wheel was remounted and the test continued.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 132 F (56 C). Eleven gears were chosen between 15% slip and 10 mph (16.1 km/h). The cooling air temperature was measured in the airstream of coil under number 5. The report reflects the test on the tractor equipped with the above hood air inlet.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1634**, February 8, 1960.

LOUIS E. LEVITICUS
Engineer-in-Charge

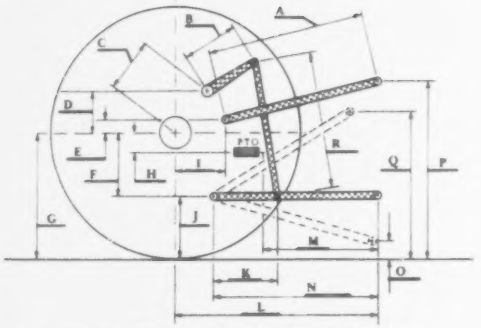
K. VON BARGEN
R. D. GRISSO
G. J. HOEFMAN
Board of Tractor Test Engineers

## THREE POINT HITCH PERFORMANCE

| Observed Maximum Pressure psi kPa | 2250 15515 | |
|---|---|---|
| Location | bottom outlet | — |
| Hydraulic oil temperature F C | 130 54 | |
| Location | hydraulic reservoir | |

**Maximum Lift Capacity with boost cylinder**

| QUICK-ATTACH | No. | No. |
|---|---|---|
| CATEGORY | III | III |
| LOAD lbs kg | 7620 3455 | 8710 3950 |
| TIME sec | 5.9 | 7.42 |
| HITCH POINT MOVEMENT in. mm | | |
| Lowest position | 14.0 356 | 14.0 356 |
| Top of tuned range | 40.0 1016 | 40.0 1016 |
| Highest position | 40.0 1016 | 40.1 1019 |
| LOAD CG MOVEMENT in. mm | | |
| Lowest position | 14.6 371 | 14.4 366 |
| Top of tuned range | 42.0 1067 | 41.9 1064 |
| Highest position | 41.9 1064 | 42.1 1069 |




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 24.8 | 629 |
| B | 16.0 | 406 |
| C | 20.1 | 511 |
| D | 18.6 | 472 |
| E | 10.4 | 263 |
| F | 10.2 | 260 |
| G | 33.2 | 831 |
| H | 1.9 | 48 |
| I | 19.9 | 506 |
| J | 23.0 | 584 |
| K | 22.3 | 566 |
| L | 45.3 | 1151 |
| M | 23.5 | 597 |
| N | 34.8 | 884 |
| O | 8.0 | 203 |
| P | 45.0 | 1143 |
| Q | 35.8 | 908 |
| R | 39.3 | 997 |

**Deutz Allis 9170 Diesel**

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

# NEBRASKA TRACTOR TEST 1635—DEUTZ ALLIS 9190 DIESEL 18 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption gal/hr (L/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/L) | Temperature °F (°C) Loading medium | Air wet bulb | Air dry bulb | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **Rated Engine Speed—Two Hours (PTO Speed—1062 rpm)** | | | | | | | | |
| 195.55 (144.33) | 2300 | 12.475 (47.222) | 0.443 (0.271) | 15.52 (3.06) | 216 (102) | 54 (12) | 73 (24) | 29.04 (98.31) |
| **Standard Power Take-off Speed (1000 rpm)—One Hour** | | | | | | | | |
| 198.96 (146.87) | 2167 | 12.027 (45.529) | 0.422 (0.257) | 16.58 (3.23) | 220 (104) | 55 (13) | 77 (25) | 29.04 (98.34) |
| **VARYING POWER AND FUEL CONSUMPTION—Two Hours** | | | | | | | | |
| 168.18 (125.42) | 2352 | 11.440 (43.305) | 0.470 (0.286) | 14.70 (2.90) | 208 (98) | 54 (12) | 77 (25) | |
| | 2474 | 4.389 (16.615) | | | 162 (72) | 55 (13) | 76 (24) | |
| 85.98 (64.11) | 2408 | 7.865 (29.765) | 0.652 (0.184) | 10.94 (2.15) | 168 (75) | 55 (13) | 77 (25) | |
| 191.86 (143.07) | 2500 | 12.278 (46.477) | 0.442 (0.269) | 15.63 (3.08) | 204 (96) | 54 (12) | 74 (23) | |
| 45.74 (32.62) | 2444 | 6.221 (23.551) | 0.985 (0.598) | 7.05 (1.39) | 172 (78) | 55 (13) | 77 (25) | |
| 127.47 (95.05) | 2378 | 9.621 (36.419) | 0.522 (0.317) | 13.25 (2.61) | 182 (83) | 55 (13) | 80 (26) | |
| **Av** 102.96 (76.78) | **2392** | **8.853** (32.688) | **0.580** (0.353) | **11.92** (2.35) | **182** (84) | **54** (12) | **77** (25) | **29.03** (98.31) |

## DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr (L/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/L) | Temp °F (°C) Cool. wtg med. | Air wet bulb | Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power—Two Hours 8th (5D) Gear** | | | | | | | | | | | |
| 170.30 (127.00) | 15005 (57.85) | 4.91 (7.90) | 2500 | 5.59 | 12.554 (47.523) | 0.509 (0.310) | 15.57 (2.67) | 171 (77) | 66 (18) | 57 (14) | 28.87 (97.75) |
| **75% of Pull at Maximum Power—Ten Hours 8th (5D) Gear** | | | | | | | | | | | |
| 156.25 (101.59) | 9905 (44.06) | 5.16 (8.30) | 2593 | 2.75 | 11.164 (42.259) | 0.506 (0.164) | 12.20 (2.40) | 142 (61) | 54 (12) | 58 (14) | 29.25 (98.97) |
| **50% of Pull at Maximum Power—Two Hours 8th (5D) Gear** | | | | | | | | | | | |
| 92.96 (69.32) | 6603 (29.37) | 5.28 (8.50) | 2429 | 1.98 | 9.952 (34.266) | 0.675 (0.409) | 10.27 (2.02) | 134 (57) | 58 (14) | 67 (19) | 29.15 (98.65) |
| **50% of Pull at Reduced Engine Speed—Two Hours 14th (5D) Gear** | | | | | | | | | | | |
| 93.09 (69.42) | 6603 (29.37) | 5.29 (8.51) | 1570 | 2.03 | 6.187 (23.430) | 0.459 (0.279) | 13.05 (2.96) | 146 (63) | 60 (16) | 68 (20) | 29.09 (98.51) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 147.97 (110.34) | 18970 (84.38) | 2.95 (4.75) | 2568 | 8.05 | 5th (2D) Gear | | | 142 (61) | 54 (12) | 60 (16) | 29.19 (98.85) |
| 167.18 (124.66) | 18550 (81.53) | 5.42 (8.50) | 2500 | 6.75 | 6th (2O) Gear | | | 149 (65) | 56 (13) | 62 (16) | 29.17 (98.78) |
| 169.07 (126.08) | 15900 (70.72) | 5.99 (9.62) | 2501 | 4.67 | 7th (5L) Gear | | | 163 (73) | 44 (7) | 54 (12) | 28.91 (97.90) |
| 175.17 (129.13) | 15206 (58.74) | 4.92 (7.91) | 2501 | 5.59 | 8th (5D) Gear | | | 167 (75) | 45 (7) | 55 (12) | 28.94 (98.00) |
| 170.17 (126.89) | 12078 (53.73) | 5.28 (8.50) | 2501 | 5.18 | 9th (4L) Gear | | | 167 (75) | 44 (7) | 54 (12) | 28.92 (97.93) |
| 168.57 (125.70) | 10778 (47.96) | 5.87 (9.44) | 2500 | 2.92 | 10th (5O) Gear | | | 162 (72) | 44 (7) | 55 (13) | 28.90 (97.87) |
| 168.93 (125.98) | 10065 (44.68) | 6.31 (10.15) | 2500 | 2.84 | 11th (5L) Gear | | | 165 (74) | 44 (7) | 55 (13) | 28.89 (97.83) |
| 172.00 (128.26) | 9950 (44.26) | 6.48 (10.43) | 2502 | 2.67 | 12th (4D) Gear | | | 163 (73) | 43 (6) | 56 (13) | 28.88 (97.80) |
| 167.05 (124.57) | 8130 (36.16) | 7.71 (12.40) | 2299 | 2.24 | 13th (4O) Gear | | | 167 (75) | 43 (6) | 56 (13) | 28.88 (97.80) |
| 170.07 (126.82) | 8257 (36.73) | 7.72 (12.43) | 2500 | 2.24 | 14th (5D) Gear | | | 163 (73) | 45 (7) | 57 (14) | 28.88 (97.80) |
| 164.62 (122.75) | 6712 (29.86) | 9.20 (14.80) | 2505 | 1.72 | 15th (5O) Gear | | | 165 (74) | 45 (7) | 57 (14) | 28.88 (97.80) |

**Department of Agricultural Engineering**

**Dates of Test:** October 24-November 13, 1989.

**Manufacturer:** WHITE NEW IDEA FARM EQUIPMENT CO. 125 West Sycamore Street, Coldwater, Ohio 45828.

**FUEL, OIL AND TIME: Fuel** No. 2 Diesel **Cetane No.** 51.1 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8300 **Fuel weight** 6.910 lbs/gal *(0.828 kg/l)* **Oil SAE** 15W-40 **API service classification** CE, CD-II, SG **To motor** 6.691 gal *(25.330 l)* **Drained from motor** 4.716 gal *(17.851 l)* **Transmission and final drive lubricant** Deutz Allis Power Fluid 821-XL **Front axle lubricant** SAE 90 Gear Lube API GL-5 **Total time engine was operated** 59.5 hours.

**ENGINE: Make** Klockner-Humboldt-Deutz Ag Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 7634237 **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** (as specified) 4.921" × 5.118" *(125 mm. × 130 mm)* **Compression ratio** 15.8 to 1 **Displacement** 584 cu in *(9570 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two full flow cartridges **Oil cooler** radiator for crankcase oil, separate radiators for transmission and powershift oils **Fuel filter** two paper cartridges **Fuel cooler** radiator for injection pump return fuel **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** air cooled with variable speed fan.

**ENGINE OPERATING PARAMETERS: Fuel rate** 82.67-88.18 lb/h *(37.5-40.0 kg/h)* **High idle** 2450-2500 rpm **Turbo boost** nominal 16-18 psi *(110-124 kPa)* as measured 17.5 psi *(119 kPa)*.

**CHASSIS: Type** front wheel assist with duals **Serial No.** *9190F-1075* **Tread width** rear 64" *(1626 mm)* to 125" *(3175 mm)* front 66.6" *(1690 mm)* to 81.8" *(2080 mm)* **Wheel base** 115" *(2921 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 41.2" *(1046 mm)* Vertical distance above roadway 39.0" *(992 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.9 *(3.1)* second 2.5 *(3.8)* third 2.5 *(4.0)* fourth 2.8 *(4.5)* fifth 3.1 *(4.9)* sixth 3.6 *(5.8)* seventh 4.1 *(6.6)* eighth 5.0 *(8.1)* ninth 5.4 *(8.7)* tenth 6.0 *(9.6)* eleventh 6.4 *(10.2)* twelfth 6.6 *(10.6)* thirteenth 7.8 *(12.5)* fourteenth 7.8 *(12.6)* fifteenth 9.2 *(14.9)* sixteenth 15.8 *(22.2)* seventeenth 16.8 *(27.0)* eighteenth 19.9 *(32.0)* reverse 2.2 *(3.6)*, 2.7 *(4.4)*, 3.2 *(5.2)*, 4.8 *(7.7)*, 5.9 *(9.4)* 6.9 *(11.1)* **Clutch** dry disc operated by foot pedal **Brakes** wet disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 198" *(5.05 m)* left 197" *(5.01 m)* (on concrete surface without brake) right 306" *(7.77 m)* left 311" *(7.89 m)* **Turning space diameter** (on concrete surface with brake applied) right 433" *(11.00 m)* left 429" *(10.89 m)* (on concrete surface without brake) right 636" *(16.15 m)* left 646" *(16.41 m)* **Power take-off** 1000 rpm at 2168 engine rpm **Unladen tractor mass** 16890 lb *(7661 kg)*.

**REPAIRS and ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 151°F (66°C). Eleven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The pull in 5th (2D) gear was limited to avoid tractor bouncing. The cooling air temperature was measured in the airstream of cylinder number 5. The report reflects the test on the tractor equipped with the above hood air inlet.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1635**, February 8, 1990.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

## LUGGING ABILITY IN 8th (5D) GEAR

| Crankshaft Speed rpm | 2501 | 2075 | 1842 | 1604 | 1375 | 1146 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 13296 (59.14) | 15218 (67.69) | 16684 (74.21) | 17617 (78.36) | 18168 (80.81) | 17909 (79.66) |
| Increase in Pull % | 0 | 15 | 26 | 33 | 58 | 56 |
| Power—Hp (kW) | 179.17 (129.13) | 178.60 (133.19) | 172.30 (128.48) | 157.07 (117.12) | 157.80 (102.76) | 115.58 (86.70) |
| Speed—Mph (km/h) | 4.92 (7.91) | 4.40 (7.08) | 3.87 (6.23) | 3.34 (5.38) | 2.84 (4.58) | 2.38 (3.83) |
| Slip % | 5.59 | 4.42 | 4.91 | 5.87 | 6.82 | 6.55 |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Maximum Available Power—Two Hours | 75.5 |
| 75% of Pull at Maximum Power—Ten Hours | 76.5 |
| 50% of Pull at Maximum Power—Two Hours | 75.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 75.0 |
| Bystander in 18th (6O) gear | 88.5 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| **Rear Tires** | —No. size ply & psi (kPa): | Four 20.8R38, * 12 (83) | Four 20.8R38, * 12 (83) |
| **Ballast** | —Liquid (each): | None | None |
| | —Tire Equip (each): | 60 lb (27 kg) | None |
| **Front Tires** | —No. size ply & psi (kPa): | Two 18.4R26, ** 16 (110) | Two 18.4R26, ** 16 (110) |
| **Ballast** | —Liquid (each): | None | None |
| | —Tire Equip (each): | 105 lb (48 kg) | None |
| **Height of Drawbar** | | 22 in. (560 mm. | 22 in. (560 mm. |
| **Static Weight with Operator** | —Rear: | 12270 lb (5565 kg) | 12050 lb (5465 kg) |
| | —Front: | 6680 lb (3029 kg) | 5670 lb (2571 kg) |
| | —Total: | 19150 lb (8686 kg) | 18700 lb (8482 kg) |

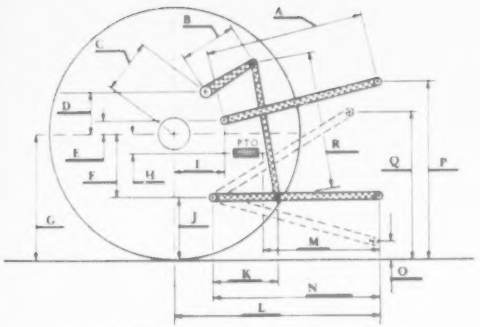
## THREE POINT HITCH PERFORMANCE

Maximum Lift Capacity

| | | |
|---|---|---|
| QUICK ATTACH | | lbs |
| CAT. II (OR I) | | lbs |
| [illegible] | | lbs |
| [illegible] | | lbs |
| [illegible] | | lbs |
| HITCH POINTS (TWO LEVER) | | |
| Lowest position | | |
| Top of travel range | | |
| Highest position | | |
| HITCH POINTS (THREE LEVER) | | |
| Lowest position | | |
| Top of travel range | | |
| Highest position | | |

* The rated lift point [illegible] is measured at the lowest position of the travel range. The rated lift point [illegible] is measured at the lowest position of the travel range.

** The [illegible] is measured at 24" behind the [illegible] and is measured at the lowest position of the travel range. The [illegible] is measured at 24" behind the [illegible] and is measured at the lowest position of the travel range.




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 25.0 | 635 |
| B | 16.0 | 406 |
| C | 20.1 | 511 |
| D | 18.6 | 472 |
| E | 10.4 | 263 |
| F | 10.2 | 260 |
| G | 32.6 | 828 |
| H | 1.9 | 48 |
| I | 19.9 | 506 |
| J | 22.4 | 568 |
| K | 22.3 | 566 |
| L | 45.5 | 1151 |
| L' | 49.9 | 1268 |
| M | 25.5 | 597 |
| N | 34.8 | 884 |
| O | 8.0 | 203 |
| P | 44.4 | 1128 |
| Q | 35.8 | 908 |
| R | 39.0 | 991 |

L' to end of quick attach

**Deutz Allis 9190 Diesel**

# NEBRASKA TRACTOR TEST 1636—WHITE 60 DIESEL 18 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temperature °F (°C) Cooling maximum | Air wet bulb | Air dry bulb | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed — Two hours (PTO Speed — 540 rpm)** | | | | | | | | |
| 61.07 (45.54) | 2200 | 4.188 (15.854) | 0.479 (0.291) | 14.58 (2.87) | 185 (85) | 51 (11) | 76 (24) | 29.15 (98.70) |
| **Standard Power Take-off Speed (540 rpm) — One Hour** | | | | | | | | |
| 61.61 (45.94) | 2160 | 4.102 (15.757) | 0.472 (0.287) | 14.80 (2.93) | 183 (84) | 48 (9) | 72 (22) | 29.16 (98.75) |
| **VARYING POWER AND FUEL CONSUMPTION — Two Hours** | | | | | | | | |
| 55.25 (39.71) | 2256 | 3.600 (13.629) | 0.473 (0.288) | 14.79 (2.91) | 185 (84) | 49 (9) | 74 (23) | ..... |
| | 2578 | 1.511 (5.718) | | | 175 (79) | 49 (9) | 75 (23) | ..... |
| 27.59 (20.42) | 2322 | 2.450 (9.275) | 0.625 (0.380) | 11.18 (2.20) | 179 (82) | 49 (9) | 74 (23) | ..... |
| 62.07 (46.28) | 2200 | 4.214 (15.952) | 0.475 (0.289) | 14.75 (2.90) | 184 (84) | 50 (10) | 74 (23) | ..... |
| 15.85 (10.55) | 2547 | 1.955 (7.398) | 0.985 (0.599) | 7.10 (1.40) | 177 (81) | 52 (11) | 76 (24) | ..... |
| 40.55 (30.25) | 2289 | 2.978 (11.275) | 0.514 (0.312) | 15.61 (2.66) | 177 (80) | 52 (11) | 76 (24) | ..... |
| Av 32.96 (24.57) | 2298 | 2.784 (10.540) | 0.891 (0.599) | 11.88 (2.35) | 179 (82) | 50 (10) | 74 (24) | 29.15 (98.67) |

## DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temp. °F (°C) Cooling med. | Air wet bulb | Air dry bulb | Barom. inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two Hours 6th (3B) Gear** | | | | | | | | | | | |
| 51.51 (38.26) | 4459 (19.83) | 4.52 (6.94) | 2199 | 5.85 | 4.112 (15.567) | 0.560 (0.341) | 12.48 (2.46) | 186 (86) | 65 (17) | 74 (23) | 29.60 (98.83) |
| **75% of Pull at Maximum Power — Ten Hours 8th (3B) Gear** | | | | | | | | | | | |
| 41.75 (31.13) | 5465 (15.41) | 4.52 (7.27) | 2280 | 2.71 | 3.499 (13.244) | 0.586 (0.356) | 11.95 (2.35) | 185 (85) | 52 (0) | 59 (4) | 29.29 (99.19) |
| **50% of Pull at Maximum Power — Two Hours 9th (3B) Gear** | | | | | | | | | | | |
| 28.50 (21.25) | 2510 (10.28) | 4.65 (7.43) | 2311 | 1.90 | 2.807 (10.963) | 0.711 (0.432) | 9.84 (1.94) | 186 (85) | 60 (9) | 67 (8) | 29.14 (98.66) |
| **50% of Pull at Reduced Engine Speed — Two Hours 12th (4C) Gear** | | | | | | | | | | | |
| 28.49 (21.24) | 2510 (10.28) | 4.62 (7.44) | 1487 | 1.81 | 2.274 (8.609) | 0.558 (0.339) | 12.55 (2.47) | 177 (81) | 42 (6) | 52 (11) | 29.14 (98.66) |

**Agricultural Research Division**
**Institute of Agriculture and Natural Resources**
**University of Nebraska–Lincoln**
**Darrell Nelson, Dean and Director**

**Department of Biological Systems Engineering**

**Dates of Test:** April 5-27, 1990

**Manufacturer:** WHITE NEW IDEA FARM EQUIPMENT Co., 123 West Sycamore Street, Coldwater, Ohio 45828

**FUEL, OIL AND TIME:** **Fuel** No. 2 Diesel **Cetane No.** 53.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F** *(15/15°C)* 0.8396 **Fuel weight** 6.991 lbs/gal *(0.838 kg/l)* **Oil SAE** 15W40 **API service classification** CE, CD-II, SG **To motor** 2.234 gal *(8.458 l)* **Drained from motor** 1.747 gal *(6.614 l)* **Transmission and powershift lubricant** White Universal Fluid **Front axle lubricant** SAE 80-90 M.P. Gear Lubricant API GL-5 **Total time engine was operated** 59.0 hours.

**ENGINE:** **Make** Consolidated Diesel Corporation-Cummins Diesel **Type** four cylinder vertical **Serial No.** 44535570B **Crankshaft** lengthwise **Rated rpm:** 2200 **Bore and stroke** (as specified) 4.02" × 4.72" *(102 mm × 120 mm)* **Compression ratio** 17.0 to 1 **Displacement** 239 cu in *(3900 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, separate radiators for hydraulic and powershift oils **Fuel filter** two paper elements and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat.

**ENGINE OPERATING PARAMETERS:** **Fuel rate** 28.9-30.1 lb/h *(13.1 13.6 kg/h)* **High idle** 2325-2425 rpm.

**CHASSIS:** **Type** front wheel assist **Serial No.** "405054-60F" **Tread width** rear 60" *(1524 mm)* to 81.3" *(2064 mm)* front 60.5" *(1540 mm)* to 66.5" *(1690 mm)* **Wheel base** 95" *(2413 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 35.6" *(904 mm)* Vertical distance above roadway 27.6" *(701 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) speed operator controlled powershift **Advertised speeds mph (km/h)** first 2.1 *(3.4)* second 2.5 *(4.1)* third 2.7 *(4.4)* fourth 3.0 *(4.9)* fifth 3.3 *(5.3)* sixth 3.6 *(5.8)* seventh 3.9 *(6.3)* eighth 4.4 *(7.0)* ninth 4.7 *(7.5)* tenth 5.2 *(8.4)* eleventh 5.6 *(9.1)* twelfth 6.8 *(10.9)* thirteenth 9.7 *(15.7)* fourteenth 11.7 *(18.9)* fifteenth 14.1 *(22.6)* sixteenth 16.7 *(26.9)* seventeenth 20.2 *(32.4)* eighteenth 24.2 *(38.9)* **reverse** 2.2 *(3.5)*, 2.6 *(4.2)*, 3.1 *(5.0)*, 3.7 *(6.0)*, 4.4 *(7.1)*, 5.3 *(8.6)* **Clutch** single dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on

## MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 46.25 (34.47) | 7762 (34.53) | 2.75 (1.74) | 2211 | 14.82 | 2nd (1B) Gear | 181 (83) | 62 (17) | 68 (20) | 28.59 (96.82) |
| 49.21 (36.69) | 7172 (31.90) | 2.57 (1.63) | 2201 | 8.38 | 3rd (2A) Gear | 183 (85) | 62 (17) | 74 (23) | 28.75 (97.29) |
| 51.38 (38.31) | 6556 (29.16) | 2.94 (1.85) | 2198 | 6.15 | 4th (1C) Gear | 183 (84) | 61 (16) | 66 (19) | 28.70 (97.13) |
| 52.53 (39.03) | 6170 (27.44) | 3.18 (2.12) | 2196 | 5.65 | 5th (2B) Gear | 184 (84) | 60 (16) | 68 (20) | 28.72 (97.26) |
| 50.68 (37.79) | 5348 (23.79) | 3.55 (2.72) | 2200 | 4.55 | 6th (3A) Gear | 186 (86) | 62 (17) | 75 (23) | 28.75 (97.29) |
| 52.59 (39.07) | 5065 (22.53) | 3.88 (2.24) | 2199 | 4.26 | 7th (2C) Gear | 185 (85) | 62 (17) | 75 (23) | 28.75 (97.29) |
| 51.99 (38.77) | 4507 (20.05) | 4.35 (2.97) | 2200 | 3.66 | 8th (3B) Gear | 185 (85) | 61 (16) | 70 (21) | 28.72 (97.26) |
| 50.55 (37.70) | 4060 (18.06) | 4.67 (2.72) | 2201 | 3.36 | 9th (4A) Gear | 183 (85) | 62 (17) | 75 (23) | 28.73 (97.29) |
| 51.92 (38.72) | 3750 (16.59) | 5.22 (3.60) | 2200 | 3.06 | 10th (3C) Gear | 185 (85) | 61 (16) | 71 (22) | 28.72 (97.26) |
| 52.07 (38.83) | 3451 (15.35) | 5.66 (3.91) | 2202 | 2.75 | 11th (4B) Gear | 185 (85) | 62 (17) | 72 (22) | 28.72 (97.26) |
| 50.87 (37.93) | 2800 (12.45) | 6.81 (3.96) | 2199 | 2.21 | 12th (4C) Gear | 185 (85) | 62 (17) | 75 (23) | 28.73 (97.29) |
| 45.78 (34.14) | 1751 (7.79) | 9.92 (5.96) | 2202 | 1.28 | 15th (5A) Gear | 186 (86) | 62 (17) | 75 (23) | 28.73 (97.29) |

## LUGGING ABILITY IN 8th (5B) GEAR

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Crankshaft Speed rpm | 2200 | 1980 | 1761 | 1540 | 1319 | 1105 | 871 |
| Pull—lbs (kN) | 4507 (20.05) | 4848 (21.56) | 5156 (22.85) | 5267 (23.43) | 5505 (23.59) | 5567 (23.87) | 5221 (23.22) |
| Increase in Pull % | 0 | 8 | 14 | 17 | 18 | 19 | 16 |
| Power—Hp (kW) | 51.99 (38.77) | 50.16 (37.40) | 47.07 (35.10) | 42.14 (31.42) | 36.58 (27.08) | 30.69 (22.89) | 23.62 (17.62) |
| Speed—Mph (km/h) | 4.35 (6.97) | 3.88 (6.24) | 3.44 (5.53) | 3.00 (4.83) | 2.57 (4.13) | 2.14 (3.45) | 1.70 (2.73) |
| Slip % | 3.66 | 4.04 | 4.48 | 4.65 | 4.65 | 4.78 | 4.65 |

| TRACTOR SOUND LEVEL WITH OUT CAB | Front Wheel Drive Disengaged dB(A) | Engaged dB(A) |
|---|---|---|
| Maximum Available Power—Two Hours | 97.0 | 96.5 |
| 75% of Pull at Maximum Power—Ten Hours | | 97.0 |
| 50% of Pull at Maximum Power—Two Hours | | 95.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | | 92.0 |
| Bystander in 10th (6A) gear | 91.0 | |

## DRAWBAR PERFORMANCE
### (Front Wheel Drive Disengaged)

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gm/hr (lb/hp.hr (kg/kW h)) | Hp.hr/gal (kW h/l) | Temp °F (°C) Cool. eng vent | Air ent bulb | Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two hours 8th (5B) Gear** | | | | | | | | | | |
| 51.25 (38.22) | 4515 (20.08) | 4.26 (6.85) | 2200 | 5.32 | 4.105 (15.560) | 0.560 (0.341) | 12.48 (2.46) | 186 (86) | 61 (16) | 75 (23) | 28.74 (97.15) |

## MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 45.17 (33.68) | 6209 (27.62) | 2.73 (4.39) | 2226 | 14.01 | 6th (1C) Gear | 184 (84) | 60 (16) | 64 (18) | 28.62 (96.92) |
| 51.74 (38.59) | 5090 (22.64) | 3.81 (6.13) | 2199 | 5.89 | 7th (2C) Gear | 186 (85) | 62 (17) | 74 (23) | 28.75 (97.29) |
| 51.85 (38.67) | 4555 (20.25) | 4.27 (6.87) | 2200 | 4.88 | 8th (5B) Gear | 185 (85) | 61 (16) | 70 (21) | 28.72 (97.26) |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —No. size, ply & psi (kPa) | Two 15.4/R34, * 16 (110) | Two 15.4/R34, * 16 (110) |
| Ballast | —Liquid (each) | None | None |
| | —Tire Liquip (each) | 132 lb (60 kg) | None |
| Front Tires | —No. size, ply & psi (kPa) | Two 13.6-24, 8, 14 (95) | Two 13.6-24, 8, 14 (95) |
| Ballast | —Liquid (each) | None | None |
| | —Tire Liquip (each) | 25 lb (11 kg) | None |
| Height of Drawbar | | 19.5 in (495 mm) | 19.5 in (495 mm) |
| Basic Weight with Operator | —Rear | 5665 lb (2570 kg) | 5400 lb (2450 kg) |
| | —Front | 3190 lb (1447 kg) | 3160 lb (1420 kg) |
| | —Total | 8855 lb (4017 kg) | 8560 lb (3874 kg) |

concrete surface with brake applied) right 147" *(3.73 m)* left 146" *(3.71 m)*(on concrete surface without brake) right 162" *(4.11 m)* left 162" *(4.11 m)* **Turning space diameter** (on concrete surface with brake applied) right 301" *(7.64 m)* left 298" *(7.57 m)*(on concrete surface without brake) right 330" *(8.38 m)* left 331" *(8.41 m)* **Power take-off** 540 rpm at 2160 engine rpm and 1000 rpm at 2217 engine rpm **Unladen tractor mass** 8540 lb *(3783 kg)*

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump was maintained at 142 °F *(61°C)*. Twelve gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is an true and correct report of official Tractor Test No. **1656**, July, 30, 1990

LOUIS J. LEVITICUS
Engineer-in-Charge

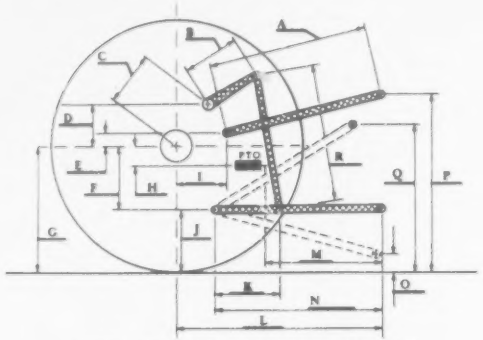
K. VON BARGEN
R.D. GRISSO
G.J. HOFFMAN
Board of Tractor Test Engineers

## THREE POINT HITCH PERFORMANCE

| | | |
|---|---|---|
| Observed Maximum Pressure psi (kPa) | 2275 | (15690) |
| Location | remote outlet | |
| Hydraulic oil temperature °F (°C) | 144 | (62) |
| Location | pump inlet | |
| | **Maximum Lift Capacity** | |
| QUICK ATTACH | No | |
| CATEGORY | II | |
| LOAD lbs (kg) | **4150 | (1871) |
| TIME sec | 2.56 | |
| HITCH POINT MOVEMENT in (mm) | | |
| Lowest position | 14.3 | (361) |
| Top of timed range | *35.8 | (909) |
| Highest position | 36.9 | (917) |
| LOAD CG MOVEMENT in (mm) | | |
| Lowest position | 15.0 | (381) |
| Top of timed range | 34.7 | (881) |
| Highest position | 35.3 | (895) |

* The observed power range 21.5"-34.6" (546 mm) does not meet the maximum power range 24.0" (610 mm) as specified by ASAE Standard S217.10

** Manufacturers advertised capacity was 4500 lb (2041 kg)




**HITCH DIMENSIONS AS TESTED—NO LOAD**

| | inch | mm |
|---|---|---|
| A | 27.5 | 699 |
| B | 15.2 | 336 |
| C | 15.0 | 330 |
| D | 12.6 | 320 |
| E | 11.6 | 294 |
| F | 9.8 | 248 |
| G | 30.2 | 766 |
| H | 2.2 | 55 |
| I | 8.9 | 227 |
| J | 20.4 | 518 |
| K | 20.0 | 508 |
| L | 39.8 | 1010 |
| M | 19.4 | 493 |
| N | 32.5 | 826 |
| O | 8.0 | 203 |
| P | 39.4 | 1001 |
| Q | 31.9 | 810 |
| R | 32.8 | 833 |

**White 60 Diesel**


**Agricultural Research Division**
**Institute of Agriculture and Natural Resources**
**University of Nebraska–Lincoln**
**Darrell W. Nelson, Dean and Director**

# NEBRASKA TRACTOR TEST 1637—WHITE 80 DIESEL
## 18 SPEED

### POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temperature °F (°C) Cooling medium | Air over bulb | Air dew bulb | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed — Two hours (PTO Speed — 994 rpm)** | | | | | | | | |
| 81.48 (60.76) | 2200 | 4.841 (18.326) | 0.413 (0.251) | 16.85 (3.92) | 168 (87) | 57 (14) | 76 (24) | 29.92 (97.92) |
| **VARYING POWER AND FUEL CONSUMPTION — Two Hours** | | | | | | | | |
| 71.87 (53.60) | 2282 | 4.484 (16.975) | 0.436 (0.265) | 16.05 (3.54) | 185 (85) | 57 (14) | 76 (24) | |
| | 2400 | 1.652 (6.254) | | | 185 (85) | 56 (13) | 76 (24) | |
| 36.67 (27.34) | 2532 | 2.914 (11.030) | 0.556 (0.338) | 12.58 (2.48) | 180 (82) | 56 (13) | 76 (24) | |
| 82.06 (61.19) | 2199 | 6.845 (25.910) | 0.413 (0.251) | 16.94 (3.73) | 188 (86) | 57 (14) | 77 (25) | |
| 18.58 (13.86) | 2559 | 2.287 (8.658) | 0.861 (0.523) | 8.12 (1.60) | 178 (81) | 57 (14) | 77 (25) | |
| 54.28 (40.48) | 2300 | 5.648 (21.377) | 0.470 (0.286) | 14.88 (2.93) | 185 (85) | 56 (13) | 76 (24) | |
| **Av** | **66.30** | **2312** | **5.306** | **0.523** | **13.57** | **185** | **56** | **76** | **29.86** |
| **Av** | **(49.46)** | | **(12.311)** | **(0.318)** | **(2.68)** | **(84)** | **(13)** | **(24)** | **(97.81)** |

### DRAWBAR PERFORMANCE
### (Front Wheel Drive Engaged)

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temp °F (°C) Cool eng med | Air over bulb | Air dew bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two Hours 7th (3B) Gear** | | | | | | | | | | | |
| 68.16 (50.82) | 5840 (25.98) | 4.58 (7.04) | 2199 | 4.61 | 4.856 (18.383) | 0.498 (0.303) | 14.04 (2.77) | 195 (91) | 65 (18) | 81 (27) | 28.60 (96.83) |
| **75% of Pull at Maximum Power — Two Hours 7th (3B) Gear** | | | | | | | | | | | |
| 55.91 (41.69) | 4526 (20.13) | 4.65 (7.46) | 2297 | 3.56 | 4.255 (16.098) | 0.532 (0.324) | 13.15 (2.59) | 185 (85) | 51 (10) | 55 (13) | 28.75 (97.36) |
| **50% of Pull at Maximum Power — Two Hours 7th (3B) Gear** | | | | | | | | | | | |
| 37.95 (28.28) | 5018 (15.42) | 4.71 (7.58) | 2518 | 2.58 | 3.419 (12.941) | 0.630 (0.383) | 11.09 (2.19) | 185 (85) | 58 (5) | 60 (4) | 29.05 (98.36) |
| **50% of Pull at Reduced Engine Speed — Two Hours 13th (8A) Gear** | | | | | | | | | | | |
| 37.90 (28.27) | 5018 (15.42) | 4.71 (7.58) | 1499 | 2.54 | 2.725 (10.315) | 0.505 (0.306) | 13.91 (2.74) | 179 (81) | 59 (4) | 60 (4) | 29.92 (97.99) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 64.18 (47.86) | 10091 (44.89) | 2.58 (3.84) | 2209 | 14.25 | 2nd (1B) Gear | | | 188 (87) | 54 (1) | 60 (4) | 29.15 (98.71) |
| 66.63 (49.69) | 8515 (16.99) | 5.00 (4.84) | 2198 | 7.04 | 3rd (1C) Gear | | | 185 (85) | 60 (16) | 68 (20) | 29.60 (96.85) |
| 66.82 (49.83) | 8004 (15.60) | 5.15 (5.04) | 2198 | 6.69 | 4th (2A) Gear | | | 185 (85) | 60 (16) | 68 (20) | 29.62 (96.92) |
| 69.44 (51.78) | 7255 (32.27) | 5.60 (5.79) | 2199 | 5.54 | 5th (5A) Gear | | | 182 (83) | 56 (2) | 67 (8) | 29.11 (98.58) |
| 71.01 (52.95) | 6946 (30.90) | 5.85 (6.17) | 2199 | 5.19 | 6th (2B) Gear | | | 185 (85) | 56 (2) | 67 (8) | 29.11 (98.58) |
| 70.74 (52.75) | 6055 (26.84) | 6.40 (7.08) | 2200 | 4.24 | 7th (5B) Gear | | | 199 (87) | 56 (2) | 60 (9) | 29.10 (98.54) |
| 69.77 (52.03) | 5620 (25.00) | 6.65 (7.49) | 2199 | 3.94 | 8th (2C) Gear | | | 187 (86) | 56 (2) | 68 (9) | 29.10 (98.54) |
| 69.92 (52.14) | 4955 (21.94) | 5.32 (8.55) | 2200 | 3.54 | 9th (5C) Gear | | | 185 (85) | 57 (3) | 69 (9) | 29.09 (98.51) |
| 70.04 (52.23) | 4757 (21.16) | 5.52 (8.89) | 2198 | 3.19 | 10th (4A) Gear | | | 182 (83) | 55 (2) | 66 (8) | 29.12 (98.61) |
| 70.18 (52.34) | 3932 (17.49) | 6.69 (10.77) | 2198 | 2.58 | 11th (4B) Gear | | | 188 (87) | 55 (2) | 66 (8) | 29.12 (98.61) |
| 68.09 (50.77) | 3692 (16.42) | 6.92 (11.13) | 2201 | 2.51 | 12th (5A) Gear | | | 182 (83) | 55 (2) | 66 (8) | 29.12 (98.61) |
| 67.67 (50.46) | 3144 (13.99) | 8.07 (12.99) | 2200 | 1.97 | 13th (4C) Gear | | | 184 (85) | 56 (2) | 67 (8) | 29.11 (98.58) |

**Department of Biological Systems Engineering**

**Dates of Test:** April 5-26, 1990

**Manufacturer:** WHITE NEW IDEA FARM EQUIPMENT Co., 125 West Sycamore Street, Coldwater, Ohio 45828

**FUEL, OIL AND TIME:** **Fuel** No. 2 Diesel **Cetane No.** 55.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F** *(15/15°C)* 0.8396 **Fuel weight** 6.991 lbs/gal *(0.838 kg/l)* **Oil SAE** 15W40 **API service classification** CE, CD-II, SG **To motor** 2.598 gal *(9.078 l)* **Drained from motor** 2.140 gal *(8.102 l)* **Transmission and powershift lubricant** White Universal Fluid **Front axle lubricant** SAE 80-90 M.P. Gear Lubricant API GL-5 **Total time engine was operated** 43.5 hours.

**ENGINE:** **Make** Consolidated Diesel Corporation-Cummins Diesel **Type** four cylinder vertical with turbocharger **Serial No.** 44317342B **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** (as specified) 4.02" × 4.72" *(102 mm × 120 mm)* **Compression ratio** 17.5 to 1 **Displacement** 239 cu in *(3900 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, separate radiators for transmission and powershift oils **Fuel filter** two paper elements and water separator **Muffler** vertical **Cooling medium temperature control** one thermostat.

**ENGINE OPERATING PARAMETERS:** **Fuel rate** 33.3-34.7 lb/h *(15.1-15.7 kg/h)* **High idle** 2325-2425 rpm **Turbo boost** nominal 8.0-10.0 psi *(55-69 kPa)* as measured 9.0 psi *(62 kPa)*

**CHASSIS:** **Type** front wheel assist **Serial No.** *402660-80F* **Tread width** rear 61" *(1549 mm)* to 89.5" *(2273 mm)* front 60.5" *(1540 mm)* to 66.5" *(1690 mm)* **Wheel base** 95" *(2413 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 32.3" *(820 mm)* Vertical distance above roadway 28.0" *(710 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph** *(km/h)* first 2.1 *(3.5)* second 2.6 *(4.2)* third 3.1 *(5.0)* fourth 3.5 *(5.2)* fifth 3.7 *(5.9)* sixth 3.9 *(6.2)* seventh 4.4 *(7.1)* eighth 4.6 *(7.5)* ninth 5.3 *(8.5)* tenth 5.5 *(8.8)* eleventh 6.6 *(10.6)* twelfth 6.8 *(10.9)* thirteenth 7.9 *(12.7)* fourteenth 8.2 *(13.2)* fifteenth 9.8 *(15.8)* sixteenth 11.6 *(18.6)* seventeenth 13.9 *(22.4)* eighteenth 16.7 *(26.8)* reverse 2.5 *(4.0)*, 3.0 *(4.8)*, 3.6 *(5.8)*, 4.2 *(6.8)*, 5.1 *(8.2)*, 6.1 *(9.8)* **Clutch** single dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 147" *(3.73 m)* left 146" *(3.71 m)* (on concrete surface without brake) right 162" *(4.11 m)* left 162" *(4.11 m)* **Turning space diameter** (on concrete surface with brake applied) right 301" *(7.64 m)* left 298" *(7.57 m)* (on concrete surface without brake) right 350" *(8.38 m)* left 351" *(8.41 m)* **Power take-off** 540 rpm at 2160 engine rpm and 1000 rpm at 2217 engine rpm **Unladen tractor mass** 9170 lb *(4159 kg)*

### LUGGING ABILITY IN 7th (5B) GEAR

| Crankshaft Speed rpm | 2200 | 1978 | 1768 | 1549 | 1509 | 1098 |
|---|---|---|---|---|---|---|
| Pull—lbs (kN) | 6055 (26.84) | 6694 (29.78) | 7212 (32.08) | 7478 (33.26) | 7484 (33.29) | 7280 (32.38) |
| Increase in Pull % | 0 | 11 | 20 | 24 | 24 | 21 |
| Power—Hp (kW) | 70.74 (52.75) | 70.10 (52.27) | 67.08 (50.02) | 60.76 (45.30) | 51.55 (38.29) | 41.97 (31.30) |
| Speed—Mph (km/h) | 4.40 (7.08) | 3.95 (6.52) | 3.49 (5.61) | 3.05 (4.90) | 2.57 (4.14) | 2.16 (3.48) |
| Slip % | 4.24 | 4.68 | 5.26 | 5.84 | 5.84 | 5.55 |

| TRACTOR SOUND LEVEL WITH OUT CAB | Front Wheel Drive Disengaged dB(A) | Front Wheel Drive Engaged dB(A) |
|---|---|---|
| Maximum Available Power—Two Hours | 94.0 | 94.0 |
| 75% of Pull at Maximum Power—Ten Hours | | 94.0 |
| 50% of Pull at Maximum Power—Two Hours | | 93.0 |
| 50% of Pull at Reduced Engine Speed—Two Hours | | 88.0 |
| Bystander in 18th (6C) gear | 85.5 | |

### DRAWBAR PERFORMANCE
### (Front Wheel Drive Disengaged)

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temp °F (°C) Cool eng med | Air over bulb | Air dew bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two hours 7th (3B) Gear** | | | | | | | | | | | |
| 65.27 (48.67) | 5678 (25.25) | 4.51 (6.94) | 2199 | 6.09 | 4.742 (17.950) | 0.508 (0.309) | 13.76 (2.71) | 188 (87) | 63 (17) | 75 (24) | 28.62 (96.92) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 61.41 (45.80) | 7725 (34.35) | 2.98 (4.60) | 2267 | 13.95 | 4th (2A) Gear | | | 181 (83) | 55 (2) | 62 (6) | 29.14 (98.68) |
| 69.52 (51.84) | 6964 (30.98) | 5.74 (9.02) | 2200 | 7.57 | 6th (2B) Gear | | | 185 (85) | 55 (2) | 63 (6) | 29.14 (98.68) |
| 69.48 (51.81) | 6028 (26.82) | 4.52 (6.95) | 2199 | 5.95 | 7th (5B) Gear | | | 186 (86) | 56 (2) | 68 (9) | 29.09 (98.51) |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —No., size, phs & psi (kPa) | Two 18.4R34, * 16 (110) | Two 18.4R34, * 16 (110) |
| Ballast | —Liquid (each) | None | None |
| | —Cast iron (each) | 980 lb (177 kg) | None |
| Front Tires | —No., size, phs & psi (kPa) | Two 15.6-24, 8, 14 (95) | Two 15.6-24, 8, 14 (95) |
| Ballast | —Liquid (each) | None | None |
| | —Cast iron (each) | 605 lb (274 kg) | None |
| Height of Drawbar | | 19.0 in (485 mm) | 19.0 in (485 mm) |
| Static Weight with Operator | —Rear | 7015 lb (3182 kg) | 6255 lb (2838 kg) |
| | —Front | 4525 lb (1962 kg) | 3115 lb (1413 kg) |
| | —Total | 11540 lb (5144 kg) | 9350 lb (4241 kg) |

### THREE POINT HITCH PERFORMANCE

| | | |
|---|---|---|
| Observed Maximum Pressure psi (kPa) | *2400 | (16550) |
| Location | remote outlet | |
| Hydraulic oil temperature °F (°C) | 162 | (72) |
| Location | pump inlet | |
| | **Maximum Lift Capacity** | |
| QUICK ATTACH | No | |
| CATEGORY | II | |
| LOAD lbs (kg) | 5020 | (2277) |
| TIME sec | 5.02 | |
| HITCH POINT MOVEMENT in (mm) | | |
| Lowest position | 13.6 | (345) |
| Top of travel range | **36.0 | (914) |
| Highest position | 36.0 | (914) |
| LOAD CG MOVEMENT in (mm) | | |
| Lowest position | 14.8 | (376) |
| Top of travel range | 35.1 | (892) |
| Highest position | 35.1 | (892) |

* The observed system pressure, 2400 psi (16550 kPa), exceeds manufacturers maximum pressure of 2275 psi (15685 kPa).

** The observed power range 22.0" (569 mm) does not meet the minimum power range 24.0" (610 mm) as specified by ASAE Standard S217.10.

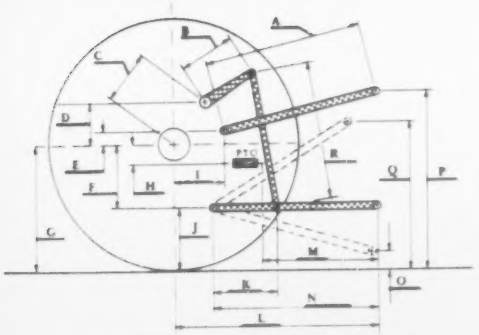
**REPAIRS AND ADJUSTMENTS:** The right brake return spring was found broken following the drawbar tests.

**REMARKS:** All test results were determined from observed data obtained in accordance with official SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump was maintained at 160 °F (71°C). Twelve gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is an true and correct report of official Tractor Test No. **1637**, July, 30, 1990.

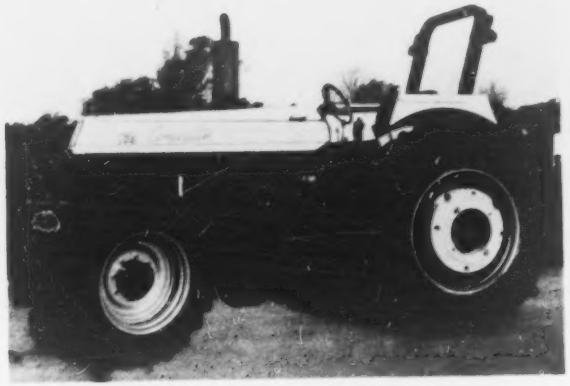
LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R.D. GRISSO
G.J. HOFFMAN
Board of Tractor Test Engineers




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 27.9 | 708 |
| B | 15.2 | 386 |
| C | 13.0 | 330 |
| D | 12.6 | 320 |
| E | 11.6 | 294 |
| F | 9.8 | 249 |
| G | 29.8 | 756 |
| H | 2.2 | 55 |
| I | 8.9 | 227 |
| J | 20.1 | 511 |
| K | 20.0 | 508 |
| L | 39.8 | 1010 |
| M | 20.1 | 511 |
| N | 32.5 | 826 |
| O | 8.0 | 203 |
| P | 39.1 | 993 |
| Q | 31.4 | 797 |
| R | 32.1 | 816 |



**White 80 Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell W. Nelson, Dean and Director


# NEBRASKA TRACTOR TEST 1638—BELARUS 420A DIESEL (ALSO BELARUS 400A DIESEL) 11 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption: gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr per gal (kW h/l) | Temperature °F (°C): Cooling medium | Air over bulb | Air dry bulb | Barometer: inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed — Two hours (PTO Speed — 540 rpm):** | | | | | | | | |
| 50.68 (37.79) | 1800 | 5.110 (19.352) | 0.429 (0.261) | 16.90 (4.23) | 185 (85) | 62 (17) | 74 (24) | 28.85 (97.63) |
| **VARYING POWER AND FUEL CONSUMPTION — Two Hours** | | | | | | | | |
| 44.10 (32.88) | 1845 | 2.725 (10.315) | 0.452 (0.261) | 16.18 (3.74) | 177 (81) | 62 (17) | 75 (24) | |
| | 1598 | 1.058 (3.951) | | | 145 (63) | 62 (17) | 74 (23) | |
| 22.41 (16.71) | 1872 | 1.398 (5.027) | 0.497 (0.302) | 14.98 (2.77) | 151 (66) | 62 (17) | 75 (24) | |
| 51.15 (38.14) | 1800 | 5.098 (19.728) | 0.425 (0.258) | 16.51 (3.25) | 178 (81) | 62 (17) | 75 (24) | |
| 11.28 (8.41) | 1888 | 1.565 (5.273) | 0.864 (0.526) | 8.09 (1.59) | 152 (67) | 62 (17) | 75 (24) | |
| 55.57 (24.88) | 1860 | 2.111 (7.992) | 0.442 (0.269) | 15.80 (3.11) | 158 (70) | 62 (17) | 75 (24) | |
| **As: 27.15 (20.25)** | **1860** | **1.989 (7.595)** | **0.815 (0.318)** | **13.82 (2.66)** | **180 (71)** | **62 (17)** | **75 (24)** | **28.85 (97.64)** |

## DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption: gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr per gal (kW h/l) | Temp. °F (°C): Cool. avg. med. | Air over bulb | Air dry bulb | Barom. inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two Hours 0th (1) Gear** | | | | | | | | | | | |
| 45.75 (12.61) | 4505 (19.4) | 5.81 (9.35) | 1798 | 5.20 | 5.111 (19.352) | 0.497 (0.302) | 14.06 (2.77) | 190 (91) | 60 (15) | 75 (24) | 28.85 (97.65) |
| **75% of Pull at Maximum Power — Ten Hours 0th (1) Gear** | | | | | | | | | | | |
| 34.92 (26.04) | 3299 (14.67) | 5.97 (9.59) | 1845 | 5.76 | 2.575 (9.746) | 0.515 (0.314) | 15.56 (2.67) | 165 (74) | 51 (10) | 65 (18) | 29.00 (98.20) |
| **50% of Pull at Maximum Power — Two Hours 0th (1) Gear** | | | | | | | | | | | |
| 25.75 (17.74) | 2200 (9.79) | 6.05 (9.52) | 1866 | 2.92 | 2.017 (7.635) | 0.594 (0.362) | 11.77 (2.32) | 146 (63) | 55 (12) | 60 (16) | 28.78 (97.44) |
| **50% of Pull at Reduced Engine Speed — Two Hours 0th (3) Gear** | | | | | | | | | | | |
| 25.78 (17.74) | 2199 (9.75) | 6.08 (9.51) | 1212 | 2.88 | 1.674 (6.335) | 0.492 (0.299) | 14.21 (2.80) | 185 (85) | 64 (18) | 79 (26) | 28.77 (97.65) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 57.66 (28.09) | 7455 (33.17) | 1.90 (3.06) | 1828 | 14.57 | 5rd (RR) Gear | | | 164 (73) | 55 (13) | 64 (18) | 28.85 (97.70) |
| 12.51 (9.33) | 2016 (8.96) | 2.29 (3.68) | 1877 | 2.67 | 4th (5R) Gear | | | 148 (64) | 57 (14) | 67 (19) | 28.85 (97.70) |
| 14.52 (10.68) | 2012 (8.95) | 2.67 (4.30) | 1874 | 2.67 | 5th (4R) Gear | | | 147 (64) | 58 (14) | 69 (21) | 28.84 (97.66) |
| 44.91 (33.69) | 4599 (19.57) | 5.85 (9.19) | 1800 | 4.79 | 6th (1) Gear | | | 172 (78) | 55 (12) | 61 (16) | 28.75 (97.36) |
| 44.51 (33.19) | 5288 (14.62) | 5.08 (8.17) | 1801 | 5.46 | 7th (2) Gear | | | 169 (76) | 55 (12) | 61 (16) | 28.74 (97.33) |
| 45.71 (32.60) | 2729 (12.14) | 6.01 (9.67) | 1800 | 5.05 | 8th (3) Gear | | | 171 (77) | 52 (11) | 60 (16) | 28.75 (97.29) |
| 45.51 (32.70) | 2506 (10.26) | 7.05 (11.34) | 1798 | 2.52 | 9th (4) Gear | | | 170 (76) | 51 (11) | 59 (15) | 28.72 (97.26) |

**Department of Biological Systems Engineering**

**Dates of Test:** May 11-21, 1990

**Manufacturer:** LIPETSK TRACTOR PLANT, Lipetsk, USSR

**FUEL, OIL AND TIME:** **Fuel** No. 2 Diesel **Cetane No.** 55.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F** *(15/15°C)* 0.8396 **Fuel weight** 6.991 lbs/gal *(0.838 kg/l)* **Oil SAE** 30 **API service classification** SE, SF/CC, CD **To motor** 2.427 gal *(9.188 l)* **Drained from motor** 1.974 gal *(7.472 l)* **Transmission and final drive lubricant** SAE 90 Gear Lube **Hydraulic lubricant** SAE 30 **Total time engine was operated** 41.5 hours.

**ENGINE:** **Make** Belarus Diesel **Model** D144-28 **Type** four cylinder vertical **Serial No.** 2595507 **Crankshaft** lengthwise **Rated rpm** 1800 **Bore and stroke** (as specified) 4.134" × 4.724" *(105 mm × 120 mm)* **Compression ratio** 16.5 to 1 **Displacement** 254 cu in *(4150 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** oil bath and pre-cleaner **Oil filter** full flow centrifugal **Oil cooler** radiator for crankcase oil **Fuel filter** one cleanable screen and one paper element **Muffler** vertical **Cooling medium temperature control** air cooled.

**ENGINE OPERATING PARAMETERS:** **Fuel rate** maximum 22.7 lb/h *(10.3 kg/h)* **High idle** not to exceed 1950 rpm.

**CHASSIS:** **Type** front wheel assist **Serial No.** 441662 **Tread width** rear 54.1" *(1375 mm)* to 72.4" *(1840 mm)* front 53.1" *(1350 mm)* to 71.1" *(1805 mm)* **Wheel base** 88.6" *(2250 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center line of rear wheels 31.5" *(800 mm)* Vertical distance above roadway 33.1" *(840 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive with throwout lever (engaged during test) **Transmission** selective gear fixed ratio **Advertised speeds mph** *(km/h)* first 1.5 *(2.3)* second 1.9 *(3.1)* third 2.2 *(3.5)* fourth 2.5 *(3.6)* fifth 2.6 *(4.2)* sixth 4.0 *(6.4)* seventh 5.3 *(8.4)* eighth 6.2 *(9.9)* ninth 7.2 *(11.6)* tenth 10.9 *(17.5)* eleventh 15.4 *(24.8)* reverse 0.8 *(1.3)*, 2.2 *(3.5)*, 4.0 *(6.4)*, 5.5 *(8.4)*, 6.2 *(9.9)*, 7.2 *(11.6)*, 10.9 *(17.5)*, 15.4 *(24.8)* **Clutch** single dry disc operated by foot pedal **Brakes** dry band operated by two foot pedals which can be locked together **Steering** power assist **Turning radius** (on concrete surface with brake applied) right 175" *(4.39 m)* left 167" *(4.24 m)* (on concrete surface without brake) right 211" *(5.36 m)* left 198" *(5.03 m)* **Turning space diameter** (on concrete surface

## LUGGING ABILITY IN 6th (1) GEAR

| | | | | | | |
|---|---|---|---|---|---|---|
| Crankshaft Speed rpm | 1800 | 1621 | 1455 | 1258 | 1072 | 899 |
| Pull—lbs<br>kN | 4509<br>(19.57) | 4695<br>(20.88) | 5154<br>(22.86) | 5195<br>(23.11) | 5170<br>(23.00) | 5019<br>(22.33) |
| Increase in Pull % | 0 | 7 | 17 | 18 | 18 | 14 |
| Power—Hp<br>kW | 44.30<br>(33.04) | 42.94<br>(32.02) | 41.24<br>(30.75) | 36.57<br>(27.27) | 31.05<br>(23.15) | 25.31<br>(18.87) |
| Speed—Mph<br>km/h | 3.83<br>(6.15) | 3.45<br>(5.52) | 3.01<br>(4.85) | 2.64<br>(4.25) | 2.25<br>(3.62) | 1.89<br>(3.04) |
| Slip % | 4.79 | 5.34 | 5.88 | 6.02 | 6.02 | 5.75 |

| TRACTOR SOUND LEVEL WITH OUT CAB | Front Wheel Drive Disengaged dB(A) | Engaged dB(A) |
|---|---|---|
| Maximum Available Power—Two Hours | 96.0 | 98.0 |
| 75% of Pull at Maximum Power—Ten Hours | | 97.5 |
| 50% of Pull at Maximum Power—Two Hours | | 96.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | | 95.0 |
| Bystander in 11th (6) gear | | 88.0 |

## DRAWBAR PERFORMANCE
### (Front Wheel Drive Disengaged)

| Power Hp<br>kW | Drawbar pull lbs<br>kN | Speed mph<br>km/h | Crank shaft speed rpm | Slip % | Fuel Consumption: gal/hr<br>L/h | lb/hp-hr<br>kg/kW-h | Hp-hr/gal<br>kW-h/L | Temp °F (°C): Cooling med. | Air ent. built | Air dry built | Barom. inch Hg<br>kPa |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two hours 6th (1) Gear** | | | | | | | | | | | |
| 44.25<br>(32.99) | 4545<br>(20.11) | 5.82<br>(9.37) | 1798 | 5.01 | 3.104<br>(11.750) | 0.490<br>(0.298) | 14.26<br>(2.81) | 174<br>(79) | 55<br>(12) | 61<br>(16) | 28.78<br>(97.44) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 52.48<br>(39.22) | 6521<br>(28.11) | 3.99<br>(6.30) | 1841 | 13.75 | 3rd (RR) Gear | | | 157<br>(69) | 55<br>(12) | 61<br>(16) | 28.86<br>(97.73) |
| 44.95<br>(33.50) | 4415<br>(19.63) | 5.82<br>(9.37) | 1798 | 5.01 | 6th (1) Gear | | | 179<br>(81) | 52<br>(11) | 60<br>(16) | 28.78<br>(97.46) |

## OPTIONAL TESTS
### (Hydraulic pump disengaged)

## POWER TAKE-OFF PERFORMANCE

| Power HP<br>kW | Crank shaft speed rpm | Fuel Consumption: gal/hr<br>L/h | lb/hp-hr<br>kg/kW-h | Hp-hr/gal<br>kW-h/L | Cooling medium | Temperature °F (°C): Air ent. built | Air dry built | Barometer inch Hg<br>kPa |
|---|---|---|---|---|---|---|---|---|

## MAXIMUM POWER AND FUEL CONSUMPTION

**Rated Engine Speed — Two Hours (PTO speed — 540 rpm)**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 52.67<br>(39.28) | 1800 | 5.148<br>(19.491) | 0.418<br>(0.254) | 16.75<br>(5.30) | .187<br>(.86) | 61<br>(16) | 75<br>(24) | 28.83<br>(97.62) |

| TIRE BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| **Rear Tires** | —No. size, ply & psi (kPa) | Two 15.6R38, 6, 18 (125) | Two 15.6R38, 6, 18 (125) |
| **Ballast** | —Liquid (each) | 570 lb (259 kg) | None |
| | —Cast Iron (each) | None | None |
| **Front Tires** | —No. size, ply & psi (kPa) | Two 8.5-20, 8, 55 (240) | Two 8.5-20, 8, 55 (240) |
| **Ballast** | —Liquid (each) | None | None |
| | —Cast Iron (each) | None | None |
| **Height of Drawbar** | | 15.5 in (395 mm) | 15.5 in (395 mm) |
| **Basic Weight with Operator** | —Rear | 5840 lb (2649 kg) | 4700 lb (2132 kg) |
| | —Front | 2825 lb (1281 kg) | 2825 lb (1281 kg) |
| | —Total | 8665 lb (3930 kg) | 7525 lb (3413 kg)* |

with brake applied) right 354" (8.99 m) left 342" (8.69 m)on concrete surface without brake) right 430" (10.92 m) left 404" (10.26 m) **Power take-off** 540 rpm at 1801 engine rpm **Unladen tractor mass** 6820 lb (3093 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

***NOTE:** Tractor is shipped with rear weights — 520 lb (145 kg) and front weight package — 405 lb (184 kg).

**REMARKS:** All test results were determined from observed data obtained in accordance with official SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 129 °F (54°C). Seven gears were chosen between 15% slip and 10 mph (16.2 km/h). The drawbar pull with the speed reducer engaged is limited by manufacturer to 2020 lb (900 N). The cooling air temperature was measured in the airstream of cylinder number 4.

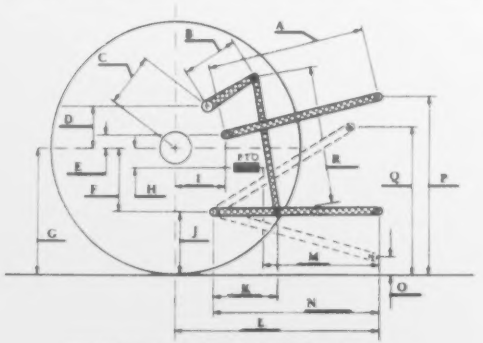
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1638**, July, 30, 1990.

LOUIS J. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R.D. GRISSO
G.J. HOFFMAN
Board of Tractor Test Engineers

## THREE POINT HITCH PERFORMANCE

| | | |
|---|---|---|
| Observed Maximum Pressure psi (kPa) | 2050 | (14116) |
| Location | remote outlet | |
| Hydraulic oil temperature °F (°C) | 155 | (57) |
| Location | hydraulic reservoir | |
| | **Maximum Lift Capacity** | |
| QUICK ATTACH | No | |
| CATEGORY | II | |
| LOAD lbs (kg) | 2992 | (1357) |
| TIME sec | 4.92 | |
| HITCH POINT MOVEMENT in (mm) | | |
| Lowest position | 12.0 | (305) |
| Top of timed range | 36.0 | (914) |
| Highest position | 36.0 | (914) |
| LOAD C.G. MOVEMENT in (mm) | | |
| Lowest position | 11.0 | (279) |
| Top of timed range | 41.6 | (1057) |
| Highest position | 41.4 | (1052) |




**HITCH DIMENSIONS AS TESTED—NO LOAD**

| | inch | mm |
|---|---|---|
| A | 29.5 | 743 |
| B | 11.8 | 300 |
| C | 12.6 | 320 |
| D | 11.0 | 279 |
| E | 6.1 | 156 |
| F | 9.2 | 234 |
| G | 28.1 | 714 |
| H | 2.8 | 72 |
| I | 11.5 | 287 |
| J | 18.9 | 480 |
| K | 21.5 | 547 |
| L | 40.7 | 1033 |
| M | 21.8 | 552 |
| N | 45.0 | 1143 |
| O | 8.0 | 203 |
| P | 37.9 | 963 |
| Q | 36.3 | 922 |
| R | 20.5 | 521 |

**Belarus 420A Diesel**

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell W. Nelson, Dean and Director

# NEBRASKA TRACTOR TEST 1640—BELARUS 822 DIESEL (ALSO BELARUS 820 DIESEL) 18 SPEED

**Department of Biological Systems Engineering**

**Dates of Test:** June 6-15, 1990

**Manufacturer:** MINSK TRACTOR WORKS. MTZ. Minsk. USSR

**FUEL, OIL AND TIME: Fuel** No. 2 Diesel **Cetane No.** 55.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F** *(15/15°C)* 0.8396 **Fuel weight** 6.991 lb/gal *(0.838 kg/l)* **Oil SAE** 30 **API service classification** SE, SF, CC, CD **To motor** 2.575 gal *(9.748 l)* **Drained from motor** 2.332 gal *(8.828 l)* **Transmission and final drive lubricant** SAE 90 gear lubricant **Hydraulic lubricant** SAE 30 **Total time engine was operated** 39.0 hours

**ENGINE: Make** MTZ Diesel **Model** D240 **Type** four cylinder vertical **Serial** No. 214556 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** (as specified) 4.331" × 4.921" *(110 mm × 125 mm)* **Compression ratio** 16 to 1 **Displacement** 290 cu in *(4750 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** oil bath with pre-cleaner **Oil filter** full flow centrifugal **Oil cooler** radiator for crankcase oil **Fuel filter** one cleanable screen and one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat

**ENGINE OPERATING PARAMETERS: Fuel rate:** not to exceed 92.4 lb/h *(14.7 kg/h)* **High idle:** not to exceed 2380 rpm.

**CHASSIS: Type** front wheel assist **Serial No.** 295455 **Tread width** rear 56.7" *(1440 mm)* to 82.7" *(2100 mm)* front 53.1" *(1350 mm)* to 70.9" *(1800 mm)* **Wheel base** 96.5" *(2450 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 36.9" *(937 mm)* Vertical distance above roadway 40.4" *(1025 mm)* Horizontal distance from center of rear wheel tread 0.4" *(11 mm)* to the right **Hydraulic control system** direct engine drive with throwout lever (engaged during test) **Transmission** selecteve gear fixed ratio **Advertised speeds mph** *(km/h)* first 1.2 *(1.9)* second 1.6 *(2.6)* third 2.1 *(3.3)* fourth 2.7 *(4.4)* fifth 3.5 *(5.6)* sixth 4.3 *(6.9)* seventh 4.6 *(7.4)* eighth 5.1 *(8.2)* ninth 5.7 *(9.1)* tenth 6.0 *(9.6)* eleventh 6.7 *(10.8)* twelfth 7.3 *(11.8)* thirteenth 7.9 *(12.7)* fourteenth 8.7 *(13.9)* fifteenth 9.7 *(15.6)* sixteenth 11.5 *(18.4)* seventeenth 16.1 *(25.9)* eighteenth 21.5 *(34.3)* reverse 2.5 *(4.1)*, 3.4 *(5.4)*, 4.5*(7.0)*, 5.7 *(9.2)* **Clutch** single dry disc operated by foot pedal **Brakes** dry disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 156" *(3.96 m)* left 191" *(4.85 m)* on concrete surface without brake) right 175" *(4.45 m)* left 215" *(5.46 m)* **Turning space diameter** (on concrete surface with brake applied) right 525" *(8.20 m)* left 595" *(9.98 m)* on concrete surface without brake) right 361" *(9.17 m)* left 441" *(11.20 m)* **Power take-off** 540 rpm at 2075 engine rpm and 1000 rpm at 2182 engine rpm **Unladen tractor mass** 8480 lb *(3846 kg)*

**REPAIRS AND ADJUSTMENTS:** One fuel injector was replaced during preliminary PTO test.

***NOTE:** Tractor is shipped with rear weights — 168 lb *(76 kg)* and front weight package — 492 lb *(223 kg)*.

**REMARKS:** All test results were determined from observed data obtained in accordance with official SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump was maintained at 104 °F *(73°C)*. Twelve gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. **1640**, July, 30, 1990

LOUIS L LEVITICUS
Engineer-in-Charge

K VON BARGEN
R D GRISSO
G J HOFFMAN
Board of Tractor Test Engineers

## POWER TAKE-OFF PERFORMANCE

| Power Hp [kW] | Crank shaft speed rpm | Fuel Consumption gal/hr [l/h] | lb/hp hr [kg/kW h] | Hp hr per gal [kW h/l] | Temperature °F [°C] Cooling medium | Air entering [Air dry bulb] | Air dry bulb | Barometer inch Hg [kPa] |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed — Two hours (PTO Speed — 571 rpm)** | | | | | | | | |
| 75.15 [56.04] | 2200 | 4.477 [16.946] | 0.417 [0.253] | 16.78 [3.71] | 195 [91] | 59 [15] | 75 [24] | 28.85 [97.70] |
| **Standard Power Take-Off Speed (1001 rpm) — One Hour** | | | | | | | | |
| 78.55 [58.57] | 2185 | 4.455 [16.780] | 0.421 [0.256] | 16.59 [3.27] | 194 [90] | 63 [17] | 74 [23] | 28.78 [97.46] |
| **Standard Power Take-Off Speed (540 rpm) — One Hour** | | | | | | | | |
| 71.71 [53.47] | 2075 | 4.221 [15.979] | 0.412 [0.250] | 16.99 [3.35] | 196 [91] | 59 [15] | 75 [24] | 28.80 [97.55] |
| **VARYING POWER AND FUEL CONSUMPTION — Two Hours** | | | | | | | | |
| 66.75 [49.77] | 2228 | 3.875 [14.668] | 0.418 [0.255] | 16.71 [3.29] | 184 [84] | 59 [15] | 75 [24] | |
| | 2591 | 1.350 [5.038] | | | 144 [62] | 59 [15] | 75 [24] | |
| 55.60 [41.45] | 2302 | 2.300 [8.707] | 0.481 [0.293] | 14.52 [2.86] | 155 [68] | 60 [16] | 75 [24] | |
| 74.22 [55.34] | 2205 | 4.407 [16.681] | 0.415 [0.253] | 16.84 [3.32] | 187 [86] | 61 [16] | 76 [24] | |
| 16.85 [12.57] | 2520 | 1.824 [6.904] | 0.757 [0.460] | 9.24 [1.82] | 154 [68] | 61 [16] | 76 [24] | |
| 49.55 [36.80] | 2268 | 3.025 [11.452] | 0.429 [0.261] | 16.51 [3.25] | 167 [75] | 65 [18] | 76 [24] | |
| **Air** | **99.06** | **2273** | **2.704** | **0.409** | **14.27** | **165** | **60** | **75** | **28.81** |
| **Air** | **[39.73]** | | **[10.379]** | **[9.298]** | **[2.81]** | **[74]** | **[16]** | **[24]** | **[97.56]** |

## DRAWBAR PERFORMANCE
(Front Drive in Automatic mode)

| Power Hp [kW] | Drawbar pull lbs [kN] | Speed mph [km/h] | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr [l/h] | lb/hp hr [kg/kW h] | Hp hr per gal [kW h/l] | Temp. °F [°C] Cool. eng. med. | Air ent. [Air dry bulb] | Air dry bulb | Barom. inch Hg [kPa] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two Hours 9th (4H) Gear** | | | | | | | | | | | |
| 62.47 [46.58] | 4229 [18.81] | 5.54 [8.92] | 2200 | 9.47 | 4.298 [16.271] | 0.481 [0.293] | 14.55 [2.86] | 190 [88] | 68 [20] | 75 [24] | 28.87 [97.75] |
| **75% of Pull at Maximum Power — Two Hours 9th (4H) Gear** | | | | | | | | | | | |
| 49.53 [36.93] | 3365 [14.91] | 5.69 [9.16] | 2244 | 2.79 | 3.545 [13.412] | 0.500 [0.304] | 13.98 [2.73] | 185 [85] | 74 [23] | 80 [27] | 28.79 [97.50] |
| **50% of Pull at Maximum Power — Two Hours 9th (4H) Gear** | | | | | | | | | | | |
| 34.10 [25.43] | 2175 [9.67] | 5.88 [9.46] | 2301 | 2.09 | 2.775 [10.505] | 0.569 [0.346] | 12.29 [2.42] | 171 [77] | 75 [24] | 85 [29] | 28.65 [96.95] |
| **50% of Pull at Reduced Engine Speed — Two Hours 14th (8L) Gear** | | | | | | | | | | | |
| 34.10 [25.42] | 2175 [9.67] | 5.88 [9.46] | 1508 | 2.07 | 2.510 [9.505] | 0.474 [0.288] | 14.76 [2.91] | 165 [74] | 74 [23] | 85 [29] | 28.62 [96.90] |

## MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 67.98 [50.72] | 9975 [44.36] | 1.80 [2.90] | 2241 | 14.58 | 3rd (2L) Gear | 185 [85] | 72 [22] | 80 [27] | 28.86 [97.69] |
| 59.20 [44.15] | 8988 [39.97] | 2.49 [4.01] | 2200 | 8.56 | 4th (2H) Gear | 185 [85] | 72 [22] | 82 [28] | 28.84 [97.59] |
| 62.58 [46.67] | 7021 [31.24] | 3.55 [5.71] | 2260 | 5.63 | 5th (3L) Gear | 185 [85] | 67 [19] | 75 [24] | 28.84 [97.60] |
| 65.57 [48.91] | 5741 [25.53] | 4.14 [6.66] | 2189 | 4.58 | 6th (4L) Gear | 185 [85] | 67 [19] | 75 [24] | 28.84 [97.60] |
| 65.55 [48.89] | 5505 [24.50] | 4.48 [7.20] | 2199 | 4.15 | 7th (5H) Gear | 186 [86] | 67 [19] | 72 [22] | 28.85 [97.65] |
| 65.55 [48.89] | 4825 [21.45] | 4.94 [7.95] | 2199 | 3.72 | 8th (5L) Gear | 187 [86] | 66 [19] | 74 [23] | 28.85 [97.70] |
| 64.27 [47.93] | 4550 [20.23] | 5.54 [8.92] | 2201 | 3.56 | 9th (4H) Gear | 188 [86] | 66 [19] | 76 [24] | 28.87 [97.77] |
| 63.41 [47.28] | 4095 [18.21] | 5.81 [9.35] | 2197 | 3.29 | 10th (6L) Gear | 187 [86] | 66 [19] | 75 [24] | 28.86 [97.73] |
| 63.45 [47.30] | 3640 [16.19] | 6.56 [10.60] | 2199 | 3.07 | 11th (5H) Gear | 186 [86] | 66 [19] | 74 [23] | 28.85 [97.70] |
| 63.10 [47.06] | 3291 [14.64] | 7.19 [11.57] | 2201 | 2.77 | 12th (7L) Gear | 185 [85] | 67 [19] | 72 [22] | 28.85 [97.65] |
| 63.52 [47.36] | 3079 [13.69] | 7.74 [12.46] | 2199 | 2.55 | 13th (6H) Gear | 186 [85] | 66 [19] | 75 [24] | 28.86 [97.73] |
| 62.19 [46.38] | 2751 [12.23] | 8.54 [13.74] | 2200 | 2.33 | 14th (8L) Gear | 181 [83] | 67 [19] | 71 [22] | 28.82 [97.60] |

## LUGGING ABILITY IN 9th (4H) GEAR

| Crankshaft Speed rpm | 2201 | 1980 | 1755 | 1555 | 1518 | 1101 |
|---|---|---|---|---|---|---|
| Pull—lbs [kN] | 4550 [19.35] | 4580 [20.37] | 4997 [22.23] | 5344 [23.77] | 5555 [23.81] | 5095 [22.66] |
| Increase in Pull % | 0 | 5 | 15 | 25 | 25 | 17 |
| Power—Hp [kW] | 66.27 [47.93] | 60.74 [45.30] | 58.69 [43.62] | 54.58 [40.70] | 46.98 [35.05] | 37.44 [27.92] |
| Speed—Mph [km/h] | 5.54 [8.92] | 4.97 [8.00] | 4.59 [7.40] | 3.85 [6.20] | 3.29 [5.30] | 2.76 [4.43] |
| Slip % | 5.56 | 5.58 | 5.87 | 4.13 | 4.30 | 4.13 |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Maximum Available Power—Two Hours | 81.5 |
| 75% of Pull at Maximum Power—Ten Hours | 80.5 |
| 50% of Pull at Maximum Power—Two Hours | 81.0 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 80.5 |
| Bystander in 17th (9L) gear | 89.0 |

## MAXIMUM POWER IN SELECTED GEARS
## MAXIMUM POWER (4WD MODE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 64.16 [47.85] | 4546 [19.91] | 5.54 [8.92] | 2199 | 2.86 | 9th (4H) Gear | 188 [86] | 66 [19] | 76 [24] | 28.87 [97.77] |

## MAXIMUM PULL (2WD MODE)

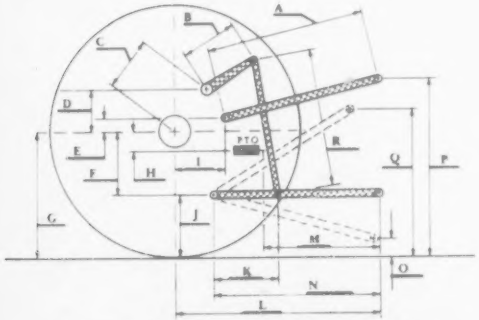
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 51.16 [38.17] | 8053 [35.82] | 2.58 [4.15] | 2254 | 14.49 | 4th (2H) Gear | 186 [92] | 72 [22] | 81 [27] | 28.85 [97.70] |

## TIRES, BALLAST AND WEIGHT

| | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —Size, rear (dry & wet) kPa | Two 480/80D 15.5 380 R 24 (165) | Two 480/80D 15.5 380 R 24 (165) |
| Ballast | —Liquid (each) | 330 lb 327 kg | None |
| | —Cast Iron (each) | 150 lb 68 kg | None |
| Front Tires | —Size, rear (dry & wet) kPa | Two 280/308 11.2-20 5 PR (69) | Two 280/308 11.2-20 5 PR (69) |
| Ballast | —Liquid (each) | None | None |
| | —Cast Iron (each) | 15 lb 7 kg | None |
| Height of Drawbar | | 15.5 in 395 mm | 15.5 in 395 mm |
| Static Weight with Operator | —Rear | 7620 lb 3456 kg | 3880 lb 2667 kg |
| | —Front | 5455 lb 2567 kg | 3450 lb 1556 kg |
| | —Total | 13075 lb 5923 kg | 9510 lb 6223 kg |

## THREE POINT HITCH PERFORMANCE

| | | |
|---|---|---|
| Observed Maximum Pressure psi (kPa) | 2800 | (19300) |
| Location | remote outlet | |
| Hydraulic oil temperature °F (°C) | 151 | 66 |
| Location | hydraulic reservoir | |
| | Maximum Lift Capacity | |
| QUICK ATTACH | No | |
| CATEGORY | II | |
| LOAD lbs (kg) | 3024 | (1368) |
| TIME sec | 2.14 | |
| HITCH POINT MOVEMENT in (mm) | | |
| Lowest position | 12.0 | (305) |
| Top of timed range | 36.0 | (914) |
| Highest position | 36.5 | (927) |
| LOAD CG MOVEMENT in (mm) | | |
| Lowest position | 12.2 | 309 |
| Top of timed range | 43.3 | (1099) |
| Highest position | 44.8 | (1137) |




| | inch | mm |
|---|---|---|
| A | 21.0 | 533 |
| B | 10.2 | 260 |
| C | 17.6 | 447 |
| D | 10.6 | 270 |
| E | 6.3 | 160 |
| F | 9.6 | 245 |
| G | 28.4 | 721 |
| H | 4.6 | 117 |
| I | 13.0 | 483 |
| J | 18.8 | 478 |
| K | 15.1 | 384 |
| L | 40.0 | 1016 |
| M | 22.6 | 573 |
| N | 31.1 | 791 |
| O | 8.0 | 203 |
| P | 37.8 | 961 |
| Q | 36.4 | 924 |
| R | 18.4 | 467 |

HITCH DIMENSIONS AS TESTED—NO LOAD

**Belarus 822 Diesel**

# NEBRASKA TRACTOR TEST 1641—BELARUS 1770 DIESEL 12 SPEED

## POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temperature °F (°C) Cooling medium | Air wet bulb | Air dry bulb | Barometer inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|
| **MAXIMUM POWER AND FUEL CONSUMPTION** | | | | | | | | |
| **Rated Engine Speed — Two hours (PTO Speed — 1024 rpm)** | | | | | | | | |
| 167.60 (124.98) | 2100 | 10.119 (38.304) | 0.422 (0.257) | 16.56 (3.26) | 195 (91) | 59 (15) | 75 (24) | 28.61 (96.88) |
| **Standard Power Take-Off Speed (1000 rpm) — One Hour** | | | | | | | | |
| 171.27 (127.71) | 2050 | 10.187 (38.563) | 0.416 (0.253) | 16.81 (3.31) | 198 (92) | 60 (16) | 76 (25) | 28.59 (96.82) |
| **VARYING POWER AND FUEL CONSUMPTION — Two Hours** | | | | | | | | |
| 148.98 (111.09) | 2195 | 9.585 (35.526) | 0.440 (0.264) | 15.87 (3.13) | 192 (89) | 62 (17) | 78 (25) | |
| | 2295 | 2.742 (10.380) | | | 169 (76) | 65 (18) | 83 (28) | |
| 76.10 (56.75) | 2245 | 5.950 (22.449) | 0.565 (0.331) | 12.85 (2.53) | 175 (79) | 65 (17) | 78 (26) | |
| 167.22 (124.69) | 2101 | 10.007 (37.881) | 0.418 (0.254) | 16.71 (3.29) | 194 (90) | 65 (17) | 80 (26) | |
| 58.44 (28.67) | 2265 | 4.502 (17.090) | 0.819 (0.498) | 8.54 (1.68) | 169 (76) | 64 (18) | 80 (27) | |
| 115.12 (84.35) | 2227 | 7.626 (28.866) | 0.471 (0.287) | 14.85 (2.92) | 180 (82) | 64 (18) | 81 (27) | |
| **Av** | **90.76** (67.68) | **2221** | **6.090** (23.357) | **0.516** (0.314) | **13.55** (2.67) | **179** (82) | **63** (17) | **80** (27) | **28.58** (96.77) |

## DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank shaft speed rpm | Slip % | Fuel Consumption gal/hr (l/h) | lb/hp hr (kg/kW h) | Hp hr/gal (kW h/l) | Temp °F (°C) Cool ing med | Air wet bulb | Air dry bulb | Barom inch Hg (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum Available Power — Two Hours 6th (2-2) Gear** | | | | | | | | | | | |
| 148.11 (110.44) | 9751 (43.37) | 5.70 (9.17) | 2100 | 4.91 | 10.156 (38.444) | 0.479 (0.292) | 14.58 (2.87) | 183 (84) | 50 (10) | 59 (15) | 28.78 (97.46) |
| **75% of Full at Maximum Power — Ten Hours 6th (2-2) Gear** | | | | | | | | | | | |
| 116.99 (87.24) | 7200 (32.03) | 6.09 (9.81) | 2215 | 3.42 | 8.827 (33.414) | 0.527 (0.321) | 13.25 (2.61) | 177 (81) | 46 (8) | 56 (13) | 28.90 (97.86) |
| **50% of Full at Maximum Power — Two Hours 6th (2-2) Gear** | | | | | | | | | | | |
| 85.08 (63.45) | 4989 (22.19) | 6.24 (10.05) | 2242 | 2.68 | 7.116 (26.938) | 0.589 (0.364) | 11.68 (2.30) | 176 (80) | 51 (10) | 59 (15) | 28.75 (97.29) |
| **50% of Full at Reduced Engine Speed — Two Hours 6th (2-4) Gear** | | | | | | | | | | | |
| 85.11 (63.98) | 4990 (22.19) | 6.25 (10.05) | 1678 | 2.66 | 6.179 (23.391) | 0.520 (0.316) | 13.45 (2.65) | 175 (79) | 50 (10) | 54 (12) | 28.70 (97.19) |
| **MAXIMUM POWER IN SELECTED GEARS** | | | | | | | | | | | |
| 124.68 (92.98) | 18440 (82.02) | 2.54 (4.08) | 2188 | 14.65 | | 2nd (1-2) Gear | | 178 (81) | 46 (8) | 54 (12) | 28.79 (97.49) |
| 158.69 (118.42) | 17487 (77.79) | 2.97 (4.79) | 2098 | 11.70 | | 3rd (1-3) Gear | | 179 (82) | 46 (8) | 54 (12) | 28.79 (97.49) |
| 142.98 (106.62) | 15396 (65.48) | 3.48 (5.60) | 2099 | 8.95 | | 4th (1-4) Gear | | 179 (82) | 47 (8) | 55 (13) | 28.79 (97.49) |
| 150.22 (112.02) | 11745 (52.23) | 4.80 (7.72) | 2100 | 6.01 | | 5th (2-1) Gear | | 181 (82) | 49 (9) | 57 (14) | 28.79 (97.49) |
| 151.50 (112.82) | 9977 (44.38) | 5.69 (9.15) | 2099 | 5.02 | | 6th (2-2) Gear | | 183 (84) | 49 (9) | 57 (14) | 28.79 (97.49) |
| 150.56 (112.13) | 8515 (37.88) | 6.78 (10.91) | 2099 | 4.15 | | 7th (2-3) Gear | | 180 (82) | 47 (8) | 55 (13) | 28.79 (97.49) |
| 148.22 (110.51) | 7174 (31.91) | 7.75 (12.47) | 2100 | 3.48 | | 8th (2-4) Gear | | 180 (82) | 48 (9) | 56 (13) | 28.79 (97.49) |

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell W. Nelson, Dean and Director

Department of Biological Systems Engineering

**Dates of Test:** May 7-17, 1990

**Manufacturer:** KHARKOV TRACTOR PLANT, Kharkov–7, USSR

**FUEL, OIL AND TIME: Fuel** No. 2 Diesel **Cetane No.** 55.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F** *(15/15°C)* 0.8596 **Fuel weight** 6.991 lbs/gal *(0.838 kg/l)* **Oil SAE 30 API service classification** SE, SF, CC, CD **To motor** 5.742 gal *(21.736 l)* **Drained from motor** 4.129 gal *(15.629 l)* **Transmission and hydraulic lubricant** SAE 30 **Final drive lubricant** SAE 90 Gear Lube **Total time engine was operated** 40.5 hours.

**ENGINE: Make** Belarus Diesel **Model** SMD 65 **Type** six cylinder vee with turbo charger **Serial No.** 953219 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** (as specified) 5.118" × 4.528" *(130 mm × 115 mm)* **Compression ratio** 15 to 1 **Displacement** 558 cu in *(9150 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** two paper elements **Air compressor** direct engine drive **Oil filter** full flow centrifugal **Oil cooler** radiator for crankcase oil, radiator for transmission oil **Fuel filter** three paper elements **Muffler** vertical **Cooling medium temperature control** two thermostats.

**ENGINE OPERATING PARAMETERS: Fuel rate** 70-75 lb/h *(31.8-33.1 kg/h)* **High idle** 2260-2300 rpm **Turbo boost** nominal 11-13 psi *(75-90 kPa)* as measured 12.0 psi *(83 kPa)*

**CHASSIS: Type** four wheel drive **Serial No.** 489886 **Tread width** rear 73.2" *(1860 mm)* front 73.2" *(1860 mm)* **Wheel base** 112.6" *(2860 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 69.9" *(1775 mm)* Vertical distance above roadway 41.7" *(1060 mm)* Horizontal distance from center of rear wheel tread 0" *(0 mm)* to the right/left **Hydraulic control system** direct engine drive with throwout lever (engaged during drawbar tests) **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.9 *(3.7)* second 2.7 *(4.4)* third 3.2 *(5.2)* fourth 3.6 *(5.9)* fifth 4.8 *(7.8)* sixth 5.7 *(9.2)* seventh 6.7 *(10.8)* eighth 7.6 *(12.3)* ninth 11.2 *(18.0)* tenth 13.1 *(21.1)* eleventh 15.5 *(24.9)* twelfth 17.6 *(28.3)* reverse 3.5 (5.6), 4.1 (6.6), 4.8(7.8), 5.5 *(8.8)* **Clutch** double dry disc pneumatically operated by foot pedal **Brakes** drum and shoe pneumatically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 264" *(6.70 m)* left 264" *(6.70 m)* **Turning space diameter** (on concrete surface without brake) right 575" *(14.60 m)* left 575" *(14.60*

## LUGGING ABILITY IN 6th (2-2) GEAR

| Crankshaft Speed rpm | 2099 | 1891 | 1684 | 1465 | 1257 | 1052 |
|---|---|---|---|---|---|---|
| Pull—lbs | 9927 | 11690 | 12819 | 11953 | 11273 | 10447 |
| —kN | 44.16 | 52.00 | 57.02 | 53.17 | 50.14 | 46.47 |
| Increase in Pull % | 0 | 17 | 29 | 20 | 15 | 5 |
| Power—Hp | 151.50 | 154.04 | 155.15 | 124.99 | 101.48 | 79.15 |
| —kW | 112.82 | 114.85 | 115.78 | 93.20 | 75.67 | 59.01 |
| Speed—Mph | 5.69 | 5.07 | 4.48 | 3.92 | 3.38 | 2.84 |
| —km/h | 9.15 | 8.16 | 7.21 | 6.31 | 5.43 | 4.57 |
| Slip % | 3.02 | 5.94 | 9.79 | 9.23 | 5.80 | 5.58 |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|---|
| Maximum Available Power—Two Hours | 81.5 |
| 75% of Pull at Maximum Power—Ten Hours | 82.5 |
| 50% of Pull at Maximum Power—Two Hours | 85.0 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 85.0 |
| Bystander in 11th (5-5) gear | 88.5 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|---|---|---|---|
| Rear Tires | —No., size, ply & psi (kPa) | Two 610-665/25 (18.26P 12.18/125) | Two 610-665/25 (18.26P 12.18/125) |
| Ballast | —Liquid, each | 430 lb (195 kg) | None |
| | —Cast Iron, each | None | None |
| Front Tires | —No., size, ply & psi (kPa) | Two 610-665/25 (18.26P 12.18/125) | Two 610-665/25 (18.26P 12.18/125) |
| Ballast | —Tire equip, each | 22 lb (10 kg) | None |
| | —Liquid, each | None | None |
| Height of Drawbar | | 20.0 in (510 mm) | 20.0 in (510 mm) |
| Static Weight with Operator | —Rear | 8290 lb (3756 kg) | 7420 lb (3366 kg) |
| | —Front | 12210 lb (5536 kg) | 12165 lb (5518 kg) |
| | —Total | 20490 lb (9294 kg) | 19585 lb (8884 kg) |

## THREE POINT HITCH PERFORMANCE

| | Maximum Lift Capacity | |
|---|---|---|
| Observed Maximum Pressure psi (kPa) | *2700 | (18621) |
| Location | remote outlet | |
| Hydraulic oil temperature °F (°C) | 175 | (79) |
| Location | hydraulic reservoir | |
| QUICK ATTACH | No | |
| CATEGORY | III | |
| LOAD lbs (kg) | 12482 | (5662) |
| TIME sec | 6.22 | |
| HITCH POINT MOVEMENT in (mm) | | |
| Lowest position | 8.0 | (203) |
| Top of timed range | 34.1 | (866) |
| Highest position | 42.6 | (1082) |
| LOAD CG MOVEMENT in (mm) | | |
| Lowest position | 10.9 | (276) |
| Top of timed range | 30.5 | (775) |
| Highest position | 37.5 | (952) |

* The observed system pressure, 2700 psi (18621 kPa), exceeds manufacturer's maximum stated pressure of 2611 psi (18000 kPa).

**m/ Power take-off** 1000 rpm at 2050 engine rpm and 540 rpm at 2025 engine rpm **Unladen tractor mass** 19400 lb *(8800 kg)*

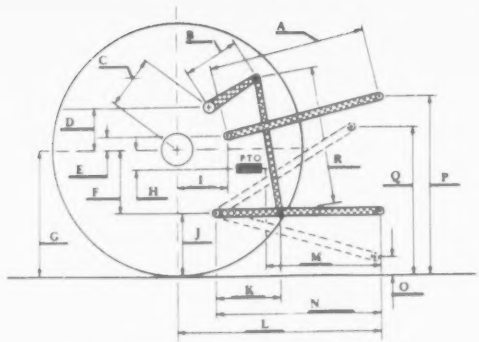
**REPAIRS AND ADJUSTMENTS:** The parking brake return spring was replaced at the end of the test sequence.

**REMARKS:** All test results were determined from observed data obtained in accordance with official SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 118 °F *(48°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is an true and correct report of official Tractor Test No. 1641, July, 30, 1990.

LOUIS T. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
R.D. GRISSO
G.J. HOFFMAN
Board of Tractor Test Engineers




HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|---|---|
| A | 34.0 | *864* |
| B | 23.6 | *600* |
| C | 30.6 | *778* |
| D | 18.5 | *470* |
| E | 18.5 | *470* |
| F | 7.7 | *195* |
| G | 30.0 | *762* |
| *H | -7.6 | *-194* |
| I | 24.4 | *620* |
| J | 22.5 | *567* |
| K | 29.2 | *741* |
| L | 58.3 | *1482* |
| M | 33.7 | *857* |
| N | 37.1 | *942* |
| O | 8.0 | *203* |
| P | 44.3 | *1125* |
| Q | 46.4 | *1178* |
| R | 28.0 | *711* |

*PTO is above rear axle

**Belarus 1770 Diesel**


Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell W. Nelson, Dean and Director

# Ten-Year Summary of Test Reports, 1981-1990

| MAKE AND MODEL OF TRACTOR | Test No. | Fuel Used | Weight With Ballast | Lbs. Ballast Carried | ENGINE No. of Cylinders | Bore and Stroke | Displacement Cu. in. | Rated RPM | Max. PTO HP at Rated Engine RPM | Std. PTO RPM | Max. PTO HP Std. PTO RPM | Max. Drawbar HP | MPH at Max. Dwbr. HP | Max. Lbs. Pull | FUEL CONSUMPTION (HP Hours Per Gallon) at:- Max. PTO HP at Std. PTO RPM | PTO Average at Varying Power | —Varing Drawbar Power— Max. Available Power | 75% of Pull Max. Power | 50% of Pull at Max. Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Allis Chalmers** | | | | | | | | | | | | | | | | | | | |
| 6060 8 Speed | 1397 | Die. | 8945 | 2480 | 4 | 3.876x4.25 | 200 | 2300 | 63.83 | 540 | 64.90 | 52.24 | 4.83 | 6846 | 16.26 | 12.07 | 13.27 | 11.99 | 10.10 |
| 6070 | 1545 | Die. | 10515 | 3055 | 4 | 3.875x4.25 | 200 | 2300 | 70.78 | 540 | 71.01 | 59.56 | 7.90 | 7997 | 16.45 | 12.60 | 13.38 | 12.30 | 10.40 |
| 6080 12 Speed | 1398 | Die. | 11790 | 4200 | 4 | 3.876x4.25 | 200 | 2300 | 83.66 | 1000 | 74.49 | 72.32 | 5.74 | 9003 | 15.70 | 13.14 | 14.27 | 12.81 | 10.93 |
| 6140 | 1445 | Die. | 6195 | 1735 | 3 | 3.858x4.055 | 142 | 2500 | 41.08 | 541 | 38.04 | 33.97 | 5.20 | 4768 | 13.47 | 10.20 | 10.87 | 10.25 | 8.88 |
| 8010 Powershift | 1446 | Die. | 13185 | 555 | 6 | 3.875x4.25 | 301 | 2300 | 107.38 | 1000 | 109.55 | 93.01 | 6.16 | 9102 | 15.01 | 11.49 | 12.57 | 11.48 | 9.54 |
| 8030 Powershift | 1447 | Die. | 17100 | 2085 | 6 | 4.25x5.00 | 426 | 2300 | 133.75 | 1000 | 134.42 | 116.65 | 6.35 | 13348 | 15.25 | 11.78 | 12.93 | 11.87 | 10.00 |
| 8050 Powershift | 1448 | Die. | 19380 | 4075 | 6 | 4.25x5.00 | 426 | 2300 | 152.40 | 1000 | 155.15 | 134.13 | 4.89 | 16728 | 15.88 | 12.51 | 13.71 | 12.73 | 10.80 |
| 8070 Powershift | 1449 | Die. | 22370 | 5520 | 6 | 4.25x5.00 | 426 | 2400 | 170.72 | 1000 | 171.44 | 147.29 | 5.87 | 18777 | 16.48 | 12.81 | 13.67 | 12.59 | 10.64 |
| **Belarus** | | | | | | | | | | | | | | | | | | | |
| 420A/400A | 1638 | Die. | 8665 | 1140 | 4 | 4.134x4.724 | 254 | 1800 | 50.68 | 540 | 50.68 | 44.91 | 3.83 | 7435 | 16.30 | 13.62 | 14.06 | 13.56 | 11.77 |
| 822/820 | 1640 | Die. | 11075 | 1765 | 4 | 4.331x4.921 | 290 | 2200 | 75.15 | 540 | 71.71 | 64.27 | 5.54 | 9973 | 16.99 | 14.27 | 14.53 | 13.98 | 12.29 |
| 1770 | 1641 | Die. | 20490 | 905 | 6 | 5.118x4.528 | 558 | 2100 | 167.60 | 1000 | 171.27 | 151.30 | 5.69 | 18440 | 16.81 | 13.55 | 14.58 | 13.25 | 11.68 |
| **Big Bud** | | | | | | | | | | | | | | | | | | | |
| 525/50 9 Speed | 1400 | Die. | 51920 | 0 | 6 | 6.25x6.25 | 1150 | 2100 | | | | 421.49 | 5.64 | 42216 | | | 14.87 | 13.97 | 12.01 |
| **Case** | | | | | | | | | | | | | | | | | | | |
| 1190 Manual | 1378 | Die. | 6780 | 2160 | 3 | 3.939x4.500 | 165 | 2200 | 43.09 | 540 | 38.54 | 36.60 | 7.60 | 4620 | 14.99 | 13.09 | 12.22 | 12.59 | 11.39 |
| 1290 Manual | 1379 | Die. | 9320 | 2750 | 4 | 3.939x4.000 | 195 | 2200 | 53.73 | 540 | 47.80 | 46.41 | 4.97 | 6851 | 15.20 | 13.34 | 12.41 | 12.90 | 11.68 |
| 1390 Manual | 1380 | Die. | 9780 | 3160 | 4 | 3.939x4.500 | 219 | 2200 | 60.59 | 1000 | 58.40 | 52.16 | 4.92 | 7348 | 15.58 | 13.36 | 12.89 | 13.24 | 11.77 |
| 1490 Manual | 1381 | Die. | 11305 | 3600 | 4 | 3.939x4.500 | 219 | 2200 | 70.51 | 1000 | 68.75 | 60.45 | 5.63 | 8340 | 17.18 | 13.62 | 13.82 | 13.00 | 11.25 |
| 1490 Powershift | 1382 | Die. | 11060 | 2635 | 4 | 3.939x4.500 | 219 | 2200 | 70.91 | 1000 | 70.48 | 61.56 | 6.76 | 8405 | 16.42 | 12.36 | 13.12 | 12.01 | 10.20 |
| 1594 Synchro | 1546 | Die. | 11100 | 1755 | 6 | 3.939x4.500 | 329 | 2300 | 85.90 | 1000 | 80.83 | 73.54 | 5.29 | 8331 | 17.04 | 14.04 | 14.26 | 13.56 | 11.99 |
| 1594 Powershift | 1547 | Die. | 11210 | 1745 | 6 | 3.939x4.500 | 329 | 2300 | 85.54 | 1000 | 81.94 | 70.59 | 5.47 | 8198 | 16.86 | 13.52 | 13.59 | 13.10 | 11.45 |
| 1690 Manual | 1383 | Die. | 12470 | 3715 | 6 | 3.939x4.500 | 329 | 2300 | 90.39 | 1000 | 87.76 | 78.08 | 4.27 | 10536 | 15.95 | 13.95 | 13.20 | 13.50 | 12.28 |
| 1896 Powershift | 1548 | Die. | 13925 | 430 | 6 | 4.016x4.724 | 359 | 2100 | 95.92 | 997 | 95.92 | 86.45 | 4.77 | 12357 | 16.71 | 12.94 | 14.82 | 13.65 | 11.34 |
| 2094 Powershift | 1525 | Die. | 14750 | 560 | 6 | 4.625x5.000 | 504 | 2100 | 110.50 | 998 | 110.50 | 100.12 | 6.34 | 11910 | 15.40 | 12.26 | 13.81 | 12.93 | 11.27 |
| 2096 Powershift | 1549 | Die. | 14940 | 760 | 6 | 4.016x4.724 | 359 | 2100 | 115.67 | 998 | 115.67 | 101.40 | 6.37 | 12915 | 17.38 | 14.01 | 15.21 | 13.92 | 11.95 |
| 2294 Powershift | 1526 | Die. | 15670 | 1280 | 6 | 4.625x5.000 | 504 | 2100 | 131.97 | 998 | 131.97 | 116.38 | 6.31 | 13017 | 14.86 | 11.82 | 13.11 | 12.21 | 10.51 |
| 2394 Powershift | 1527 | Die. | 18595 | 2355 | 6 | 4.625x5.000 | 504 | 2100 | 162.15 | 1002 | 162.15 | 142.07 | 5.53 | 15497 | 15.46 | 12.70 | 13.42 | 12.71 | 11.04 |
| 2594 Powershift | 1529 | Die. | 19790 | 3570 | 6 | 4.625x5.000 | 504 | 2100 | 182.07 | 1002 | 182.07 | 161.96 | 6.40 | 16874 | 15.22 | 12.88 | 13.37 | 12.94 | 11.63 |
| 3294 Powershift | 1528 | Die. | 17980 | 0 | 6 | 4.625x5.000 | 504 | 2100 | 162.63 | 998 | 162.63 | 143.68 | 5.75 | 16242 | 15.32 | 12.58 | 13.55 | 12.76 | 11.13 |
| 4994 Powershift | 1530 | Die. | 39930 | 8615 | 8 | 5.00x5.51 | 866 | 2100 | 344.04 | 991 | 344.04 | 306.43 | 7.20 | 34519 | 17.03 | 13.81 | 14.67 | 13.87 | 12.18 |
| **Case IH** | | | | | | | | | | | | | | | | | | | |
| 685 | 1604 | Die. | 8845 | 3010 | 4 | 3.875x5.06 | 239 | 2400 | 61.02 | 540 | 58.80 | 54.63 | 5.42 | 7207 | 14.76 | 11.56 | 12.66 | 11.86 | 9.95 |
| 2394 Powershift | 1582 | Die. | 18630 | 2230 | 6 | 4.625x5.00 | 504 | 2100 | 162.92 | 1002 | 162.92 | 148.98 | 5.12 | 17425 | 15.81 | 13.02 | 14.36 | 13.56 | 11.89 |
| 3394 Powershift | 1583 | Die. | 18610 | 2810 | 6 | 4.625x5.00 | 504 | 2100 | 162.86 | 1002 | 162.86 | 144.82 | 5.08 | 17421 | 15.39 | 12.59 | 13.51 | 12.48 | 10.55 |
| 3594 Powershift | 1584 | Die. | 20500 | 2910 | 6 | 4.625x5.00 | 504 | 2100 | 182.27 | 1002 | 182.27 | 165.12 | 5.07 | 20384 | 15.45 | 13.05 | 13.70 | 12.91 | 11.20 |
| **John Deere** | | | | | | | | | | | | | | | | | | | |
| 750 8 Speed | 1504 | Die. | 2150 | 155 | 3 | 3.15x3.35 | 78.2 | 2400 | 18.54 | 540 | 19.80 | 15.73 | 6.41 | 1661 | 15.06 | 11.61 | 12.48 | 11.53 | 9.83 |
| 1250 | 1437 | Die. | 5180 | 90 | 3 | 3.74x4.33 | 143 | 2500 | 40.70 | 540 | 40.98 | 34.01 | 5.39 | 3750 | 17.00 | 13.56 | 13.90 | 12.71 | 10.68 |
| 1450 9 Speed | 1505 | Die. | 6570 | 1340 | 4 | 3.74x4.33 | 190 | 2400 | 51.39 | 540 | 50.93 | 43.79 | 7.68 | 5321 | 17.60 | 14.01 | 14.74 | 13.67 | 11.64 |
| 1650 9 Speed | 1506 | Die. | 7785 | 2435 | 4 | 3.74x4.33 | 190 | 2300 | 62.22 | 540 | 62.70 | 54.06 | 7.79 | 6572 | 18.81 | 15.53 | 15.96 | 14.97 | 12.95 |
| 2040 8 Speed TSS (1) | 1393 | Die. | 6040 | 265 | 3 | 4.19x4.33 | 179 | 2500 | 40.44 | 540 | 40.22 | 33.21 | 5.16 | 5541 | 14.87 | 10.93 | 11.69 | 10.71 | 8.76 |
| 2150 16 Speed | 1469 | Die. | 5930 | 820 | 3 | 4.19x4.33 | 179 | 2500 | 46.47 | 540 | 46.13 | 38.69 | 6.98 | 4875 | 14.77 | 11.15 | 11.88 | 11.24 | 9.47 |
| 2240 8 Speed TSS (1) | 1394 | Die. | 6205 | 310 | 3 | 4.19x4.33 | 179 | 2500 | 50.90 | 540 | 49.20 | 42.13 | 5.08 | 5777 | 15.32 | 11.75 | 11.98 | 11.45 | 9.78 |
| 2350 16 Speed | 1470 | Die. | 7190 | 380 | 4 | 4.19x4.33 | 239 | 2500 | 56.18 | 540 | 55.69 | 47.53 | 6.77 | 5688 | 15.67 | 11.66 | 12.96 | 11.87 | 9.87 |
| 2550 16 Speed | 1471 | Die. | 8485 | 1575 | 4 | 4.19x4.33 | 239 | 2500 | 65.94 | 540 | 65.53 | 56.24 | 6.22 | 6979 | 15.42 | 11.85 | 12.83 | 12.09 | 10.10 |
| 2750 16 Speed | 1472 | Die. | 9625 | 2125 | 4 | 4.19x4.33 | 239 | 2500 | 75.35 | 540 | 75.07 | 63.98 | 4.75 | 7581 | 16.11 | 12.29 | 13.13 | 12.37 | 10.51 |
| 2755 | 1605 | Die. | 9715 | 1170 | 4 | 4.19x4.33 | 239 | 2300 | 76.57 | 1000 | 77.63 | 66.05 | 5.18 | 7498 | 17.82 | 14.04 | 14.87 | 14.19 | 12.14 |
| 2950 16 Speed | 1473 | Die. | 11045 | 945 | 6 | 4.19x4.33 | 359 | 2500 | 85.37 | 1000 | 85.50 | 73.30 | 6.57 | 8768 | 16.33 | 12.21 | 13.58 | 12.45 | 10.53 |
| 2955 | 1606 | Die. | 11150 | 130 | 6 | 4.19x4.33 | 359 | 2300 | 86.22 | 1000 | 85.54 | 74.20 | 5.42 | 9971 | 17.41 | 13.63 | 14.82 | 13.79 | 11.64 |
| 3150 | 1589 | Die. | 12300 | 355 | 6 | 4.19x4.33 | 359 | 2400 | 96.06 | 997 | 96.06 | 83.04 | 5.64 | 10507 | 16.45 | 13.09 | 14.23 | 13.34 | 11.21 |

# Ten-Year Summary of Test Reports, 1981-1990

| MAKE AND MODEL OF TRACTOR | Test No. | Fuel Used | Weight With Ballast | Lbs. Ballast Carried | ENGINE No. of Cylinders | Bore and Stroke | Displacement Cu. in. | Rated RPM | Max. PTO HP at Rated Engine RPM | Std. PTO RPM | Max. PTO HP Std. PTO RPM | Max. Drawbar HP | MPH at Max. Dwbr. HP | Max. Lbs. Pull | FUEL CONSUMPTION (HP Hours Per Gallon) at:- Max. PTO HP at Std. PTO RPM | PTO Average at Varying Power | —Varing Drawbar Power— Max. Available Power | 75% of Pull Max. Power | 50% of Pull at Max. Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **John Deere** | | | | | | | | | | | | | | | | | | | |
| 4050 Quad | 1474 | Die | 13005 | 835 | 6 | 4.57x4.75 | 466 | 2200 | 101.49 | 1002 | 101.49 | 92.05 | 6.49 | 10331 | 15.12 | 11.72 | 13.44 | 12.54 | 10.64 |
| 4050 Quadrange | 1590 | Die | 13670 | 1280 | 6 | 4.19x4.33 | 359 | 2200 | 105.89 | 1003 | 105.89 | 96.35 | 5.86 | 11381 | 17.23 | 13.60 | 15.34 | 14.25 | 12.13 |
| 4050 Powershift | 1457 | Die | 13030 | 310 | 6 | 4.57x4.75 | 466 | 2200 | 100.95 | 1002 | 100.95 | 88.75 | 7.88 | 11058 | 15.08 | 11.59 | 12.60 | 11.69 | 9.65 |
| 4050 Powershift | 1591 | Die | 13685 | 1000 | 6 | 4.19x4.33 | 359 | 2200 | 105.69 | 1003 | 105.69 | 91.64 | 8.51 | 11378 | 17.40 | 13.76 | 14.61 | 13.47 | 10.99 |
| 4250 Quad | 1475 | Die | 14990 | 1620 | 6 | 4.57x4.75 | 466 | 2200 | 120.21 | 1002 | 120.21 | 108.77 | 5.71 | 12858 | 15.70 | 12.21 | 13.90 | 12.82 | 10.64 |
| 4250 Powershift | 1458 | Die | 14970 | 1115 | 6 | 4.57x4.75 | 466 | 2200 | 120.86 | 1002 | 120.86 | 105.11 | 8.36 | 12802 | 15.78 | 12.33 | 13.44 | 12.08 | 10.17 |
| 4450 Quad | 1476 | Die | 16680 | 2380 | 6 | 4.57x4.75 | 466 | 2200 | 140.33 | 1002 | 140.33 | 125.18 | 5.01 | 15069 | 16.36 | 13.08 | 14.42 | 13.45 | 11.61 |
| 4450 Quad (2) | 1476 | Die | 16760 | 2005 | 6 | 4.57x4.75 | 466 | 2200 | 140.33 | 1002 | 140.33 | 126.34 | 5.37 | 16278 | 16.36 | 13.08 | 14.68 | | |
| 4450 Powershift | 1459 | Die | 16745 | 1795 | 6 | 4.57x4.75 | 466 | 2200 | 140.43 | 1002 | 140.43 | 121.94 | 8.03 | 15014 | 16.15 | 12.94 | 13.63 | 12.58 | 10.60 |
| 4450 Powershift (2) | 1459 | Die | 16625 | 1225 | 6 | 4.57x4.75 | 466 | 2200 | 140.43 | 1002 | 140.43 | 122.51 | 8.58 | 16154 | 16.15 | 12.94 | 13.66 | | |
| 4650 Quad | 1477 | Die | 19615 | 1615 | 6 | 4.57x4.75 | 466 | 2200 | 165.70 | 998 | 165.70 | 145.58 | 6.45 | 16814 | 16.99 | 13.90 | 14.80 | 13.81 | 12.11 |
| 4650 Quad (2) | 1477 | Die | 19590 | 1150 | 6 | 4.57x4.75 | 466 | 2200 | 165.70 | 998 | 165.70 | 147.71 | 5.73 | 18931 | 16.99 | 13.90 | 14.90 | | |
| 4650 Powershift | 1460 | Die | 19660 | 1075 | 6 | 4.57x4.75 | 466 | 2200 | 165.52 | 998 | 165.52 | 143.33 | 8.12 | 16746 | 16.96 | 13.78 | 14.25 | 13.15 | 11.31 |
| 4650 Powershift (2) | 1460 | Die | 19740 | 695 | 6 | 4.57x4.75 | 466 | 2200 | 165.52 | 998 | 165.52 | 146.06 | 8.47 | 18794 | 16.96 | 13.78 | 14.44 | | |
| 4850 Powershift | 1461 | Die | 21435 | 2715 | 6 | 4.57x4.75 | 466 | 2200 | 192.99 | 998 | 192.99 | 171.27 | 8.04 | 18789 | 17.47 | 14.50 | 14.68 | 13.80 | 12.01 |
| 4850 Powershift (2) | 1461 | Die | 21440 | 27[illegible] | 6 | 4.57x4.75 | 466 | 2200 | 192.99 | 998 | 192.99 | 172.60 | 4.26 | 20810 | 17.47 | 14.50 | 14.93 | | |
| 8450 | 1436 | Die | 29150 | | 6 | 4.57x4.75 | 466 | 2100 | 186.98 | 993 | 186.98 | 175.73 | 4.50 | 26567 | 15.69 | 12.91 | 14.45 | 13.53 | 11.63 |
| 8650 | 1435 | Die | 30270 | 0 | 6 | 5.125x5.00 | 619 | 2100 | 238.56 | 993 | 238.56 | 221.80 | 5.55 | 28257 | 15.53 | 12.65 | 14.26 | 13.22 | 11.52 |
| 8850 | 1434 | Die | 37700 | 0 | 8 | 5.51x5.00 | 955 | 2100 | 303.99 | 996 | 303.99 | 274.25 | 5.23 | 35330 | 15.74 | 12.82 | 14.06 | 13.34 | 11.65 |
| (1) With mechanical front wheel drive. (2) Supplementary test with radial ply tires. | | | | | | | | | | | | | | | | | | | |
| **Deutz** | | | | | | | | | | | | | | | | | | | |
| DX 120 | 1405 | Die | 14950 | 1980 | 6 | 4.02x4.92 | 374 | 2400 | 111.29 | 1000 | 101.90 | 97.41 | 7.32 | 12615 | 16.40 | 13.84 | 13.59 | 13.48 | 12.03 |
| DX 130 | 1404 | Die | 17630 | 3690 | 6 | 4.02x4.92 | 374 | 2300 | 121.27 | 1000 | 121.36 | 105.63 | 4.76 | 14406 | 17.63 | 13.77 | 14.14 | 13.10 | 11.26 |
| **Deutz Allis** | | | | | | | | | | | | | | | | | | | |
| 6260 | 1574 | Die | 8790 | 1530 | 3 | 4.09x4.92 | 187 | 2500 | 57.09 | 540 | 55.35 | 50.73 | 4.60 | 7270 | 15.47 | 13.20 | 12.95 | 13.46 | 11.63 |
| 7085 | 1575 | Die | 13660 | 3580 | 4 | 4.02x4.92 | 249 | 2300 | 85.18 | 1000 | 84.35 | 75.13 | 7.56 | 10502 | 16.89 | 14.03 | 14.40 | 13.76 | 12.00 |
| 7120 | 1576 | Die | 17595 | 5465 | 6 | 4.02x4.92 | 374 | 2300 | 122.06 | 1000 | 123.15 | 105.49 | 5.06 | 13633 | 17.15 | 13.63 | 14.20 | 12.98 | 11.36 |
| 9150 | 1633 | Die | 18625 | 2710 | 6 | 4.016x4.921 | 374 | 2400 | 151.07 | 1000 | 150.22 | 135.88 | 5.14 | 17334 | 16.47 | 13.26 | 14.53 | 13.37 | 11.44 |
| 9170 | 1634 | Die | 21480 | 4015 | 6 | 4.921x5.118 | 584 | 2300 | 173.37 | 1000 | 178.70 | 158.67 | 4.93 | 19027 | 16.71 | 12.47 | 13.99 | 12.75 | 10.72 |
| 9190 | 1635 | Die | 19150 | 450 | 6 | 4.921x5.118 | 584 | 2300 | 193.55 | 1000 | 196.96 | 173.17 | 4.92 | 18970 | 16.38 | 11.89 | 113.57 | 12.20 | 10.27 |
| **Deutz Fahr** | | | | | | | | | | | | | | | | | | | |
| DX 3.50 | 1574 | Die | 8790 | 1530 | 3 | 4.02x4.92 | 187 | 2500 | 57.09 | 540 | 55.35 | 50.73 | 4.60 | 7270 | 15.47 | 13.20 | 12.95 | 13.46 | 11.63 |
| DX 4.70 | 1575 | Die | 13660 | 3580 | 4 | 4.02x4.92 | 249 | 2300 | 85.18 | 1000 | 84.35 | 75.13 | 7.56 | 10502 | 16.89 | 14.03 | 14.40 | 13.76 | 12.00 |
| DX 6.50 | 1576 | Die | 17595 | 5465 | 6 | 4.02x4.92 | 374 | 2300 | 122.06 | 1000 | 123.15 | 105.49 | 5.06 | 13633 | 17.15 | 13.63 | 14.20 | 12.98 | 11.36 |
| **Ford** | | | | | | | | | | | | | | | | | | | |
| 1510 (12x4) Manual | 1500 | Die | 3205 | 975 | 3 | 3.03x3.15 | 68.2 | 2800 | 19.72 | 540 | 20.45 | 16.99 | 6.92 | 1952 | 13.21 | 10.32 | 11.14 | 10.25 | 8.50 |
| 1510 (12x4) Synchro | 1501 | Die | 3200 | 915 | 3 | 3.03x3.15 | 68.2 | 2800 | 19.98 | 540 | 18.68 | 16.83 | 6.70 | 1900 | 13.50 | 10.29 | 10.97 | 10.27 | 8.57 |
| 1710 (12x4) Manual | 1502 | Die | 3510 | 1040 | 3 | 3.31x3.31 | 85.2 | 2700 | 23.88 | 540 | 22.19 | 21.02 | 7.06 | 2700 | 13.42 | 10.16 | 11.36 | 10.76 | 8.98 |
| 1710 (12x4) Synchro | 1503 | Die | 3530 | 1060 | 3 | 3.31x3.31 | 85.2 | 2700 | 23.79 | 540 | 22.34 | 21.23 | 5.68 | 2680 | 13.18 | 9.92 | 11.04 | 10.56 | 8.81 |
| 1910 (12x4) Manual | 1507 | Die | 4250 | 1270 | 3 | 3.346x3.937 | 103.9 | 2500 | 28.60 | 540 | 28.29 | 25.57 | 6.78 | 3340 | 12.94 | 10.32 | 11.14 | 10.86 | 9.17 |
| 1910 (12x4) Synchro | 1508 | Die | 4325 | 1285 | 3 | 3.346x3.937 | 103.9 | 2500 | 28.52 | 540 | 28.30 | 25.62 | 6.79 | 3449 | 12.48 | 10.36 | 10.99 | 10.78 | 9.09 |
| 2110 (12x4) Manual | 1509 | Die | 5105 | 1470 | 4 | 3.346x3.937 | 138.5 | 2500 | 34.79 | 540 | 34.91 | 30.80 | 7.01 | 3868 | 14.01 | 10.69 | 11.80 | 10.95 | 9.04 |
| 2110 (12x4) Synchro | 1510 | Die | 5110 | 1450 | 4 | 3.346x3.937 | 138.5 | 2500 | 35.11 | 540 | 35.56 | 31.11 | 6.99 | 3728 | 14.01 | 10.71 | 11.77 | 11.11 | 9.35 |
| 2610 (8x2) | 1421 | Die | 5940 | 1780 | 3 | 4.20x4.20 | 175 | 2000 | 36.69 | 540 | 35.14 | 31.45 | 5.52 | 4473 | 16.15 | 12.82 | 13.03 | 12.71 | 10.51 |
| 2810 (8x2) | 1573 | Die | 5935 | 1295 | 3 | 4.20x3.80 | 158 | 2000 | 32.83 | 540 | 31.82 | 29.14 | 5.88 | 4036 | 15.20 | 11.57 | 12.88 | 11.99 | 9.96 |
| 2910 (8x2) | 1491 | Die | 5925 | 1295 | 3 | 4.20x4.20 | 175 | 2000 | 36.62 | 540 | 35.09 | 30.45 | 5.77 | 4237 | 16.04 | 12.51 | 13.18 | 12.31 | 10.49 |
| 2910 (8x4) | 1492 | Die | 5955 | 1305 | 3 | 4.20x4.20 | 175 | 2000 | 36.40 | 540 | 34.75 | 31.03 | 5.68 | 4223 | 15.95 | 12.58 | 13.00 | 12.24 | 10.59 |
| 3610 (8x2) | 1422 | Die | 6340 | 2070 | 3 | 4.40x4.20 | 192 | 2000 | 42.26 | 540 | 40.17 | 36.80 | 5.85 | 4964 | 15.95 | 12.65 | 13.37 | 12.69 | 11.20 |
| 3610 (8x4) | 1423 | Die | 6340 | 2045 | 3 | 4.40x4.20 | 192 | 2000 | 42.47 | 540 | 40.01 | 35.57 | 8.55 | 4917 | 16.26 | 12.94 | 12.85 | 12.44 | 10.53 |
| 3910 (8x2) | 1493 | Die | 6440 | 1760 | 3 | 4.40x4.20 | 192 | 2000 | 42.62 | 540 | 40.39 | 37.02 | 5.93 | 4931 | 15.86 | 12.48 | 13.33 | 12.66 | 10.73 |
| 3910 (8x4) | 1494 | Die | 6435 | 1735 | 3 | 4.40x4.20 | 192 | 2000 | 42.67 | 540 | 41.16 | 36.22 | 5.85 | 4934 | 15.64 | 12.63 | 13.16 | 12.34 | 10.59 |
| 4110 (8x2) | 1424 | Die | 7500 | 2850 | 3 | 4.40x4.40 | 201 | 2200 | 48.33 | 540 | 42.65 | 41.25 | 4.51 | 5681 | 16.37 | 12.64 | 13.26 | 12.34 | 10.76 |

| MAKE AND MODEL OF TRACTOR | Test No. | Fuel Used | Weight With Ballast | Lbs. Ballast Carried | ENGINE No. of Cylinders | Bore and Stroke | Displacement Cu. in. | Rated RPM | Max. PTO HP at Rated Engine RPM | Std PTO RPM | Max. PTO HP Std. PTO RPM | Max. Drawbar HP | MPH at Max. Dwbr. HP | Max. Lbs. Pull | FUEL CONSUMPTION (HP Hours Per Gallon) at:- Max. PTO HP at Std. PTO RPM | PTO Average at Varying Power | —Varing Drawbar Power— Max. Available Power | 75% of Pull Max. Power | 50% of Pull at Max. Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4110 (8x4) | 1425 | Die | 7500 | 2785 | 3 | 4.40x4.40 | 201 | 2200 | 49.26 | 540 | 44.06 | 40.59 | 4.92 | 5691 | 16.06 | 12.32 | 12.92 | 12.13 | 10.44 |
| 4610 (8x2) | 1426 | Die | 8190 | 3095 | 3 | 4.40x4.40 | 201 | 2200 | 52.52 | 540 | 46.72 | 44.51 | 5.17 | 6402 | 16.78 | 13.17 | 13.96 | 13.25 | 11.60 |
| 4610 (8x4) | 1427 | Die | 8230 | 3085 | 3 | 4.40x4.40 | 201 | 2200 | 52.32 | 540 | 47.30 | 43.26 | 5.62 | 6534 | 16.83 | 13.05 | 13.53 | 12.77 | 11.18 |
| 5610 (16x4) | 1428 | Die | 9700 | 2325 | 4 | 4.40x4.20 | 256 | 2100 | 62.54 | 540 | 60.58 | 54.63 | 5.69 | 7408 | 15.57 | 12.38 | 12.82 | 12.44 | 10.30 |
| 5610 (16x8) | 1429 | Die | 9545 | 3130 | 4 | 4.40x4.20 | 256 | 2100 | 62.57 | 540 | 59.99 | 53.75 | 6.57 | 7578 | 15.45 | 12.11 | 12.93 | 12.03 | 10.09 |
| 6610 (16x4) | 1430 | Die | 9700 | 2270 | 4 | 4.40x4.40 | 268 | 2100 | 72.13 | 540 | 68.27 | 61.17 | 5.62 | 7887 | 15.64 | 13.14 | 13.40 | 12.90 | 10.77 |
| 6610 (16x8) | 1431 | Die | 9700 | 2850 | 4 | 4.40x4.40 | 268 | 2100 | 72.30 | 540 | 69.20 | 62.64 | 6.49 | 7948 | 15.43 | 12.91 | 13.18 | 12.84 | 10.87 |
| 7610 (16x4) | 1432 | Die | 10800 | 2220 | 4 | 4.40x4.40 | 268 | 2100 | 86.95 | 1000 | 86.79 | 74.22 | 5.53 | 8804 | 15.75 | 12.44 | 13.36 | 12.29 | 10.35 |
| 7710 (16x8) | 1433 | Die | 10800 | 2150 | 4 | 4.40x4.40 | 268 | 2100 | 86.62 | 1000 | 86.55 | 73.24 | 6.42 | 8638 | 15.87 | 12.60 | 13.67 | 12.26 | 10.35 |
| TW 5 | 1514 | Die | 14430 | 1340 | 6 | 4.40x4.40 | 401 | 2300 | 105.74 | 1000 | 96.83 | 95.27 | 8.52 | 12249 | 15.52 | 12.42 | 13.14 | 12.91 | 11.38 |
| TW 15 | 1515 | Die | 16010 | 2755 | 6 | 4.40x4.40 | 401 | 2200 | 121.40 | 1000 | 117.83 | 107.24 | 8.09 | 13247 | 16.90 | 12.39 | 13.83 | 12.80 | 10.88 |
| TW 15 FWD (1) | 1536 | Die | 16680 | 2310 | 6 | 4.40x4.40 | 401 | 2200 | 121.25 | 1000 | 115.58 | 107.35 | 5.21 | 15939 | 16.95 | 12.39 | 13.96 | 12.65 | 10.68 |
| TW 25 | 1516 | Die | 17965 | 2530 | 6 | 4.40x4.40 | 401 | 2200 | 140.68 | 1000 | 135.70 | 126.10 | 5.25 | 14871 | 16.66 | 12.58 | 13.89 | 13.02 | 11.20 |
| TW 35 | 1517 | Die | 20270 | 4090 | 6 | 4.40x4.40 | 401 | 2200 | 170.30 | 1000 | 166.67 | 147.49 | 5.30 | 17054 | 17.41 | 13.81 | 14.31 | 13.91 | 12.18 |
| TW 35 FWD (1) | 1537 | Die | 20270 | 3130 | 6 | 4.40x4.40 | 401 | 2200 | 171.12 | 1000 | 162.55 | 147.55 | 5.44 | 18823 | 17.58 | 14.09 | 14.42 | 13.71 | 12.04 |
| (1) Drawbar test with front wheel assist engaged. | | | | | | | | | | | | | | | | | | | |
| **Hesston Fiat** | | | | | | | | | | | | | | | | | | | |
| 466 12 Speed | 1484 | Die | 6670 | 950 | 3 | [illegible]x4.33 | 158 | 2600 | 45.13 | 540 | 42.68 | 40.03 | 5.79 | 4969 | 16.74 | 12.41 | 13.66 | 12.87 | 10.95 |
| 480 8 DT and | | | | | | | | | | | | | | | | | | | |
| 480 8 12 & 8 Speed | 1385 | Die | 7805 | 2485 | 3 | 3.937x4.33 | 158 | 2600 | 42.58 | 540 | 40.36 | 37.07 | 5.07 | 5265 | 16.93 | 12.27 | 13.34 | 12.54 | 10.64 |
| 45 66 DT | 1579 | Die | 5400 | 950 | 3 | 3.937x4.528 | 165 | 2500 | 39.49 | 540 | 37.97 | 31.74 | 4.68 | 4257 | 16.65 | 12.11 | 12.36 | 11.23 | 9.46 |
| 55 66 DT | 1560 | Die | 6570 | 1105 | 3 | 3.037x4.528 | 165 | 2500 | 45.78 | 540 | 44.84 | 38.74 | 5.64 | 4608 | 16.36 | 12.77 | 12.98 | 12.80 | 11.27 |
| 60 66 DT | 1531 | Die | 7460 | 1580 | 3 | 4.094x4.527 | 178.8 | 2500 | 51.49 | 540 | 48.51 | 45.51 | 5.53 | 5515 | 17.13 | 13.11 | 14.19 | 13.30 | 11.38 |
| 70 66 DT | 1561 | Die | 8700 | 2015 | 4 | 3.937x4.528 | 220.5 | 2500 | 62.72 | 1000 | 62.71 | 54.83 | 5.69 | 8320 | 17.20 | 13.67 | 14.64 | 13.61 | 11.54 |
| 70 90 | 1562 | Die | 7775 | 490 | 4 | 3.937x4.527 | 220.5 | 2500 | 62.25 | 1000 | 61.94 | 54.64 | 5.62 | 6238 | 16.52 | 13.28 | 14.04 | 13.46 | 11.82 |
| 80 90 | 1563 | Die | 9465 | 2155 | 4 | 4.094x4.527 | 238.5 | 2500 | 70.86 | 1000 | 69.25 | 61.52 | 5.56 | 7323 | 17.43 | 13.96 | 14.76 | 14.09 | 12.28 |
| 100 90 | 1580 | Die | 11580 | 1860 | 6 | 3.937x4.527 | 331 | 2500 | 91.52 | 1000 | 90.57 | 78.72 | 6.35 | 9911 | 16.24 | 12.93 | 13.62 | 12.76 | 10.68 |
| 666 12 Speed | 1485 | Die | 8715 | 2425 | 4 | 3.937x4.33 | 211 | 2500 | 62.40 | 540 | 60.33 | 54.31 | 5.51 | 6611 | 17.00 | 13.00 | 13.79 | 13.20 | 11.73 |
| 780 DT and | | | | | | | | | | | | | | | | | | | |
| 780 8 Speed | 1386 | Die | 10100 | 3920 | 4 | 4.055x4.33 | 224 | 2500 | 70.57 | 540 | 66.67 | 62.06 | 7.61 | 6965 | 16.71 | 13.96 | 13.72 | 13.86 | 12.26 |
| 80 66 DT | 1532 | Die | 9400 | 2685 | 4 | 4.094x4.527 | 238.5 | 2500 | 70.43 | 1000 | 68.91 | 62.73 | 5.47 | 7245 | 17.22 | 14.08 | 14.96 | 14.21 | 12.66 |
| 1180 DT Turbo | 1450 | Die | 16885 | 1935 | 6 | 4.055x4.33 | 335 | 2550 | 107.48 | 1000 | 104.22 | 93.71 | 4.37 | 12905 | 16.40 | 12.54 | 14.16 | 12.74 | 10.42 |
| 1380 DT, 1380 | 1409 | Die | 16995 | 1795 | 6 | 4.055x4.33 | 335 | 2400 | 123.16 | 1000 | 123.54 | 104.97 | 8.08 | 13105 | 16.49 | 13.30 | 13.60 | 13.01 | 11.62 |
| 130 90 DT Turbo | 1564 | Die | 16385 | 660 | 6 | 4.094x4.527 | 358 | 2500 | 107.48 | 1000 | 106.80 | 91.59 | 4.67 | 14850 | 16.43 | 12.07 | 13.83 | 12.17 | 10.85 |
| 140 90 DT Turbo | 1533 | Die | 16425 | 375 | 6 | 4.094x4.527 | 358 | 2500 | 123.35 | 1000 | 122.83 | 105.81 | 5.05 | 12687 | 17.12 | 13.04 | 14.40 | 13.16 | 11.13 |
| 1580 DT Turbo | 1451 | Die | 19060 | 2460 | 6 | 4.528x5.118 | 494 | 2200 | 141.44 | 1000 | 136.14 | 124.15 | 5.48 | 15342 | 17.28 | 13.49 | 14.70 | 13.53 | 11.47 |
| 160 90 DT Turbo | 1534 | Die | 18370 | 1075 | 6 | 4.528x5.118 | 494 | 2200 | 141.71 | 1000 | 143.91 | 122.23 | 5.32 | 13848 | 17.53 | 13.61 | 14.38 | 13.62 | 11.84 |
| 160 90 Powershift | 1603 | Die | 18220 | 300 | 6 | 4.528x5.118 | 494 | 2200 | 142.64 | 1000 | 141.40 | 126.34 | 4.44 | 18256 | 16.69 | 12.96 | 13.92 | 12.93 | 11.10 |
| 1880 DT, 1880 | 1410 | Die | 19710 | 3020 | 6 | 4.528x5.118 | 494 | 2200 | 162.48 | 1000 | 159.83 | 138.81 | 5.44 | 15656 | 17.35 | 13.87 | 14.53 | 13.58 | 12.07 |
| 180 90 DT Turbo | 1535 | Die | 19725 | 2430 | 6 | 4.528x5.118 | 494 | 2200 | 162.87 | 1000 | 158.66 | 140.45 | 6.40 | 14713 | 17.86 | 14.13 | 14.82 | 14.25 | 12.29 |
| 180 90 Turbo P.S. | 1581 | Die | 19570 | 1745 | 6 | 4.528x5.118 | 494 | 2200 | 162.15 | 1000 | 161.07 | 143.02 | 4.43 | 19734 | 16.77 | 13.07 | 14.03 | 13.30 | 11.06 |
| **International Harvester** | | | | | | | | | | | | | | | | | | | |
| 284 8 Speed | 1387 | Die | 3600 | 860 | 3 | 3.27x3.94 | 99 | 2600 | 27.47 | 540 | 23.92 | 23.52 | 5.71 | 2523 | 14.40 | 10.91 | 10.99 | 10.53 | 9.18 |
| 786 16 Speed | 1388 | Die | 11930 | 340 | 6 | 3.875x5.0625 | 358 | 2400 | 80.20 | 1000 | 77.41 | 70.25 | 4.74 | 9968 | 15.72 | 11.40 | 12.72 | 11.88 | 10.00 |
| 3088 16 Speed | 1551 | Die | 12500 | 560 | 6 | 3.875x5.062 | 358 | 2400 | 81.35 | 1000 | 80.28 | 71.20 | 5.16 | 10995 | 16.03 | 11.36 | 12.84 | 11.59 | 9.76 |
| 3288 | 1438 | Die | 13560 | 1800 | 6 | 3.875x5.062 | 358 | 2400 | 90.46 | 1000 | 88.33 | 80.72 | 6.11 | 11486 | 15.94 | 11.69 | 13.16 | 12.31 | 10.27 |
| 3488 Hydro | 1439 | Die | 13940 | 1060 | 6 | 4.30x5.35 | 466 | 2400 | 112.56 | 1000 | 107.11 | 83.43 | 6.50 | 12152 | 15.28 | 10.64 | 10.00 | 9.73 | 8.63 |
| 3688 | 1440 | Die | 14335 | 1135 | 6 | 4.30x5.00 | 436 | 2400 | 113.72 | 1000 | 112.48 | 100.28 | 7.36 | 12250 | 15.75 | 11.82 | 13.30 | 12.35 | 10.38 |
| 5088 (2) | 1419 | Die | 16250 | 240 | 6 | 4.30x5.00 | 436 | 2400 | 136.12 | 1005 | 136.12 | 121.17 | 5.06 | 14960 | 15.32 | 11.65 | 13.23 | 12.04 | 9.90 |
| 5288 | 1420 | Die | 18585 | 1530 | 6 | 4.30x5.35 | 466 | 2400 | 162.60 | 1005 | 162.60 | 142.37 | 5.27 | 17577 | 16.07 | 12.62 | 13.70 | 12.77 | 10.75 |
| 5488 | 1441 | Die | 20005 | 2765 | 6 | 4.30x5.35 | 466 | 2400 | 187.22 | 1005 | 187.22 | 164.82 | 5.27 | 18646 | 16.20 | 13.00 | 14.16 | 13.15 | 11.21 |
| (1) Serial No. 2490208 U17026 and up. (2) Drawbar information is from test run with radial ply tires. | | | | | | | | | | | | | | | | | | | |
| **Kubota** | | | | | | | | | | | | | | | | | | | |
| L235 | 1406 | Die | 3715 | 1280 | 3 | 3.00x3.23 | 68 | 2600 | 19.59 | 540 | 19.63 | 16.05 | 4.68 | 2440 | 14.33 | 11.34 | 11.33 | 10.85 | 9.23 |
| L275 | 1407 | Die | 4055 | 1430 | 3 | 3.23x3.23 | 79.3 | 2600 | 23.42 | 540 | 23.01 | 19.70 | 4.84 | 2717 | 14.57 | 11.55 | 11.62 | 11.07 | 9.95 |
| L2250 4WD | 1585 | Die | 3130 | 530 | 3 | 3.23x3.23 | 79.3 | 2600 | 21.15 | 540 | 21.45 | 17.28 | 5.04 | 2103 | 17.18 | 13.38 | 13.46 | 12.36 | 10.67 |
| L2550 4WD | 1586 | Die | 3850 | 1100 | 3 | 3.35x3.23 | 85.1 | 2600 | 23.98 | 541 | 24.24 | 20.23 | 5.22 | 2446 | 16.52 | 13.37 | 13.27 | 12.39 | 10.55 |
| L2850 4WD | 1587 | Die | 4580 | 1615 | 4 | 3.23x3.23 | 105.7 | 2600 | 27.51 | 540 | 27.96 | 24.02 | 5.02 | 3143 | 16.98 | 13.07 | 13.49 | 12.68 | 10.92 |
| L3350 4WD | 1588 | Die | 5340 | 1155 | 4 | 3.35x3.23 | 113.6 | 2600 | 32.86 | 540 | 33.29 | 27.49 | 4.92 | 3434 | 17.13 | 13.52 | 13.32 | 12.78 | 11.08 |
| L3750 4WD | 1555 | Die | 5945 | 1530 | 5 | 3.35x3.23 | 142 | 2500 | 36.96 | 540 | 36.81 | 30.69 | 4.96 | 3641 | 17.32 | 13.32 | 13.29 | 12.49 | 10.69 |
| L4150 4WD | 1556 | Die | 6365 | 1840 | 5 | 3.35x3.23 | 142 | 2600 | 40.64 | 540 | 40.22 | 34.50 | 5.47 | 4257 | 17.12 | 13.24 | 13.14 | 12.81 | 11.07 |
| M4030 DT | 1594 | Die | 7375 | 2415 | 6 | 3.23x3.23 | 158.5 | 2600 | 44.05 | 540 | 44.08 | 36.91 | 6.02 | 4005 | 17.19 | 13.48 | 13.80 | 12.92 | 11.16 |
| M4050 DT and M4050 8 Speed | 1495 | Die | 7215 | 2275 | 6 | 3.23x3.23 | 158.5 | 2600 | 45.74 | 540 | 42.10 | 37.61 | 5.99 | 4259 | 15.06 | 11.57 | 11.67 | 11.52 | 9.88 |

# Ten-Year Summary of Test Reports, 1981-1990

| MAKE AND MODEL OF TRACTOR | Test No. | Fuel Used | Weight With Ballast | Lbs. Ballast Carried | ENGINE No. of Cylinders | Bore and Stroke | Displacement Cu. in. | Rated RPM | Max. PTO HP at Rated Engine RPM | Std. PTO RPM | Max. PTO HP Std. PTO RPM | Max. Drawbar HP | MPH at Max. Dwbr. HP | Max. Lbs. Pull | FUEL CONSUMPTION (HP Hours Per Gallon) at:- Max. PTO HP at Std. PTO RPM | PTO Average at Varying Power | —Varing Drawbar Power— Max. Available Power | 75% of Pull Max. Power | 50% of Pull at Max. Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Kubota** | | | | | | | | | | | | | | | | | | | |
| M4950 DT & | | | | | | | | | | | | | | | | | | | |
| M4950 12 Speed | 1496 | Die | 8195 | 2395 | 6 | 3.35x3.23 | 170 | 2600 | 49.57 | 540 | 45.47 | 41.43 | 4.68 | 5292 | 14.70 | 11.21 | 11.49 | 11.15 | 9.26 |
| M5030 DT | 1595 | Die | 8120 | 2985 | 6 | 3.35x3.23 | 170 | 2600 | 49.77 | 540 | 48.94 | 42.00 | 4.90 | 4592 | 17.28 | 13.58 | 13.72 | 13.34 | 11.67 |
| M5950 DT & | | | | | | | | | | | | | | | | | | | |
| M5950 12 Speed | 1497 | Die | 9220 | 3100 | 3 | 4.29x4.53 | 196 | 2400 | 58.00 | 540 | 52.81 | 49.29 | 5.09 | 5749 | 17.08 | 13.44 | 13.64 | 13.53 | 11.83 |
| M6030 DT | 1596 | Die | 8970 | 3590 | 3 | 4.29x4.53 | 196 | 2400 | 57.74 | 540 | 53.57 | 48.11 | 5.54 | 5330 | 16.96 | 13.32 | 13.28 | 13.32 | 11.68 |
| M6950 DT & | | | | | | | | | | | | | | | | | | | |
| M6950 12 Speed | 1498 | Die | 9575 | 2530 | 4 | 4.13x4.53 | 243 | 2400 | 66.44 | 540 | 63.96 | 56.74 | 5.02 | 6517 | 16.98 | 13.26 | 13.72 | 13.28 | 11.33 |
| M7030 DT | 1597 | Die | 9405 | 3205 | 4 | 4.13x4.53 | 243 | 2400 | 68.87 | 540 | 64.38 | 58.49 | 5.23 | 5896 | 17.43 | 13.68 | 14.03 | 13.80 | 11.97 |
| M7950 DT & | | | | | | | | | | | | | | | | | | | |
| M7950 12 Speed | 1499 | Die | 10305 | 3205 | 4 | 4.29x4.53 | 262 | 2400 | 75.44 | 540 | 69.32 | 65.24 | 5.26 | 7244 | 17.14 | 13.57 | 13.88 | 13.82 | 11.93 |
| M8030 DT | 1598 | Die | 9970 | 3640 | 4 | 4.29x4.53 | 262 | 2400 | 76.91 | 540 | 70.47 | 64.37 | 6.97 | 6503 | 17.23 | 13.71 | 13.70 | 13.54 | 11.95 |
| M8950 DT | 1557 | Die | 12270 | 2540 | 4 | 4.29x4.53 | 262 | 2400 | 85.63 | 1005 | 85.63 | 71.13 | 7.53 | 7974 | 16.21 | 12.91 | 12.96 | 12.37 | 10.36 |
| **Long** | | | | | | | | | | | | | | | | | | | |
| 510 | 1415 | Die | 8210 | 3925 | 3 | 4.02x4.33 | 164.5 | 2400 | 49.15 | 540 | 46.91 | 43.27 | 5.14 | 6040 | 15.74 | 13.48 | 13.15 | 13.52 | 12.24 |
| 510DTC | 1416 | Die | 9100 | 3835 | 3 | 4.02x4.33 | 164.5 | 2400 | 49.35 | 540 | 46.41 | 41.37 | 4.63 | 5635 | 16.47 | 13.72 | 13.68 | 13.30 | 11.69 |
| 610 | 1417 | Die | 8985 | 4290 | 4 | 4.02x4.33 | 219 | 2400 | 64.33 | 540 | 60.57 | 57.48 | 5.37 | 7018 | 15.93 | 13.46 | 13.58 | 13.51 | 11.92 |
| **Massey Ferguson** | | | | | | | | | | | | | | | | | | | |
| MF154.4 | 1411 | Die | 6920 | 1615 | 3 | 3.60x5.00 | 152 | 2250 | 42.52 | 540 | 40.38 | 35.40 | 4.52 | 4144 | 17.26 | 13.41 | 13.79 | 13.00 | 11.42 |
| MF184.4 12 Speed | 1392 | Die | 7775 | 1395 | 4 | 3.875x5.00 | 236 | 2200 | 62.45 | 540 | 59.56 | 52.38 | 7.13 | 5500 | 16.41 | 12.37 | 12.61 | 12.11 | 10.69 |
| MF240 8 Speed | 1519 | Die | 4985 | 770 | 3 | 3.60x5.00 | 152 | 2000 | 34.77 | 540 | 31.89 | 29.39 | 5.30 | 3824 | 16.10 | 13.18 | 13.72 | 13.35 | 11.59 |
| MF250 8 Speed | 1520 | Die | 5760 | 1175 | 3 | 3.60x5.00 | 152 | 2250 | 40.86 | 540 | 36.93 | 35.07 | 5.81 | 4297 | 15.86 | 12.38 | 12.92 | 12.50 | 10.72 |
| MF254 12 Speed | 1478 | Die | 7275 | 1790 | 3 | 3.60x5.00 | 152 | 2250 | 43.36 | 540 | 40.71 | 35.14 | 5.82 | 3844 | 16.58 | 13.43 | 12.84 | 12.51 | 10.62 |
| MF270 8 Speed | 1521 | Die | 8195 | 1295 | 4 | 3.875x5.00 | 236 | 2000 | 55.85 | 540 | 52.75 | 47.08 | 4.96 | 5896 | 16.79 | 12.99 | 13.44 | 13.10 | 11.22 |
| MF274 12 Speed | 1479 | Die | 8190 | 2205 | 4 | 3.875x5.00 | 236 | 2200 | 55.39 | 540 | 54.26 | 46.76 | 6.56 | 4719 | 17.25 | 12.80 | 13.76 | 12.66 | 10.59 |
| MF290 12 Speed | 1522 | Die | 9070 | 3130 | 4 | 3.975x5.00 | 248 | 2200 | 65.92 | 540 | 59.37 | 56.36 | 6.44 | 7654 | 16.58 | 12.75 | 13.24 | 12.76 | 10.98 |
| MF294 12 Speed | 1480 | Die | 8645 | 1925 | 4 | 3.975x5.00 | 248 | 2100 | 67.39 | 540 | 64.94 | 56.28 | 5.77 | 5665 | 17.58 | 14.53 | 14.68 | 13.95 | 12.54 |
| MF298 8 Speed | 1523 | Die | 11040 | 3070 | 4 | 4.50x5.00 | 318 | 2000 | 79.54 | 1000 | 73.66 | 69.74 | 5.14 | 8712 | 16.31 | 12.88 | 13.47 | 13.14 | 11.55 |
| MF298 12 Speed | 1524 | Die | 10950 | 2935 | 4 | 4.50x5.00 | 318 | 2000 | 79.26 | 1000 | 74.25 | 67.85 | 7.73 | 8663 | 15.72 | 11.93 | 12.40 | 12.39 | 10.79 |
| MF670 & 270 12 Speed | 1538 | Die | 9200 | 480 | 4 | 3.875x5.00 | 236 | 2000 | 55.62 | 1000 | 51.44 | 46.05 | 4.87 | 6382 | 16.39 | 12.37 | 12.93 | 12.10 | 10.26 |
| MF690 12 Speed | 1539 | Die | 10295 | 2275 | 4 | 3.975x5.00 | 248 | 2200 | 65.68 | 540 | 62.25 | 54.78 | 4.77 | 7650 | 15.51 | 11.96 | 12.01 | 11.79 | 9.82 |
| MF698 12 Speed | 1540 | Die | 12125 | 2185 | 4 | 4.50x5.00 | 318 | 2000 | 78.83 | 540 | 74.41 | 68.38 | 4.56 | 8707 | 15.91 | 11.91 | 12.55 | 12.24 | 10.59 |
| MF699 12 Speed | 1541 | Die | 12935 | 2610 | 6 | 3.875x5.00 | 354 | 2200 | 85.79 | 540 | 78.00 | 71.71 | 4.69 | 8718 | 16.96 | 12.87 | 13.51 | 12.66 | 10.64 |
| MF1020 | 1552 | Die | 2930 | 700 | 3 | 2.953x3.347 | 68.7 | 2350 | 17.08 | 540 | 16.24 | 14.59 | 5.01 | 1771 | 12.53 | 10.51 | 10.36 | 10.44 | 9.39 |
| MF1030 | 1553 | Die | 3915 | 925 | 3 | 3.228x3.543 | 87 | 2500 | 23.35 | 540 | 22.80 | 18.66 | 5.70 | 2277 | 12.97 | 10.31 | 10.04 | 9.82 | 8.30 |
| MF1040 | 1554 | Die | 4715 | 915 | 3 | 3.622x3.937 | 121.7 | 2500 | 27.73 | 540 | 25.80 | 22.57 | 5.52 | 2795 | 12.98 | 10.01 | 10.07 | 9.53 | 7.84 |
| MF2640 15 Speed | 1481 | Die | 16380 | 3945 | 6 | 3.875x5.00 | 354 | 2400 | 90.95 | 1000 | 87.60 | 74.83 | 6.58 | 10623 | 15.81 | 11.67 | 12.15 | 11.46 | 9.70 |
| MF2775 8 Speed | 1389 | Die | 20170 | 4365 | 8 | 4.63x4.75 | 640 | 2600 | 162.09 | 1000 | 146.87 | 139.68 | 5.73 | 16766 | 15.78 | 11.19 | 12.45 | 11.68 | 9.56 |
| MF2805 8 Speed | 1399 | Die | 21430 | 5395 | 8 | 4.63x4.75 | 640 | 2500 | 190.81 | 1000 | 186.29 | 164.58 | 5.41 | 17647 | 16.59 | 10.97 | 12.41 | 11.43 | 9.58 |
| MF3505 16 Speed | 1511 | Die | 13195 | 260 | 6 | 3.875x5.00 | 354 | 2400 | 91.50 | 1000 | 87.47 | 74.79 | 6.54 | 8344 | 15.53 | 11.40 | 11.55 | 10.90 | 9.19 |
| MF3525 16 Speed | 1512 | Die | 14645 | 1545 | 6 | 3.875x5.00 | 354 | 2400 | 108.01 | 1000 | 103.67 | 91.22 | 6.45 | 9322 | 16.67 | 11.65 | 12.65 | 11.53 | 9.31 |
| MF3545 16 Speed | 1513 | Die | 17235 | 3935 | 6 | 3.875x5.00 | 354 | 2400 | 126.72 | 1000 | 122.15 | 105.16 | 6.82 | 10563 | 17.01 | 12.11 | 12.86 | 11.47 | 9.64 |
| MF4900 18 Speed | 1391 | Die | 33940 | 2975 | 8 | 5.5x4.75 | 903 | 2600 | 320.55 | 1000 | 323.88 | 278.78 | 6.53 | 30090 | 16.80 | 11.95 | 13.26 | 11.82 | 9.87 |
| **Steiger** | | | | | | | | | | | | | | | | | | | |
| Bearcat 1000 | 1592 | Die | 28575 | 0 | 6 | 4.75x6.00 | 638 | 2100 | 218.00 | 1001 | 218.00 | 195.49 | 4.45 | 28566 | 16.61 | 13.41 | 14.68 | 13.57 | 11.60 |
| Bearcat III ST 225(1) | 1414 | Die | 30005 | 464 | 6 | 4.75x6.00 | 638 | 2100 | | | | 197.69 | 5.47 | 28805 | | | 13.99 | 13.54 | 11.65 |
| Bearcat IV KM 225 | 1542 | Die | 33830 | 5430 | 6 | 4.921x5.354 | 611 | 2100 | | | | 193.11 | 4.18 | 31556 | | | 16.43 | 15.28 | 13.12 |
| Cougar 1000 | 1593 | Die | 31270 | 2820 | 6 | 4.75x6.00 | 638 | 2100 | 259.96 | 1001 | 259.96 | 230.18 | 6.59 | 30981 | | | 15.17 | 14.31 | 12.53 |
| Cougar CR 1225 | 1577 | Die | 29190 | 0 | 6 | 4.75x6.00 | 638 | 2100 | 208.61 | 999 | 208.61 | 184.83 | 5.16 | 29570 | 16.46 | 13.29 | 14.40 | 13.46 | 11.44 |
| Cougar CR 1280 | 1578 | Die | 29600 | 0 | 6 | 4.75x6.00 | 638 | 2100 | 258.15 | 999 | 258.15 | 231.19 | 5.19 | 28708 | 17.19 | 14.18 | 15.18 | 14.30 | 12.36 |
| Cougar III ST 250(2) | 1452 | Die | 29965 | 0 | 6 | 4.75x6.00 | 638 | 2100 | | | | 215.98 | 6.11 | 29539 | | | 15.16 | 14.40 | 12.76 |
| Cougar III PTA 280 | 1402 | Die | 33675 | 2895 | 6 | 5.50x6.00 | 855 | 2100 | | | | 224.92 | 5.54 | 32625 | | | 13.74 | 12.54 | 10.44 |
| Cougar III PTA 280 | 1413 | Die | 33150 | 2370 | 6 | 5.40x6.50 | 893 | 2100 | | | | 236.55 | 7.07 | 32085 | | | 14.24 | 13.14 | 11.19 |